THE FOUNDATIONS OF HUMAN BEHAVIOR IN HEALTH AND ILLNESS

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OVERVIEW

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INTRODUCTION

For many practicing physicians and other care givers, patients' population is still seen as divided into two separate groups: the true physically ill and those who are ill but show no explanatory organic defect. The first group remains in treatment with the physician and his allies in physical treatment, while the second group is labeled as psychiatrically or psychologically impaired, and are usually passed on for psychological or psychiatric treatment.

One basic position taken by the authors of this book is that both categories, physical medicine and psychological medicine, overlap. In fact, this overlapping between these two categories is not quite recent, but was viewed as basically important since the early recorded history, and, particularly, throughout Greek and Islamic history. For example, since the times of Hippocrates, the psychological factors have been viewed as fundamentally important in medicine. Many earlier Islamic practicing physicians, have maintained such relationship between personal habits and both psychological and physical health. Personal habits such as moderate eating, good sleeping, faith, and peace of mind were all seen by Islamic Scholars and physicians, such as Avicenna and Al-Razi, as conducive to good health and better life. This implies that these two categories of general medicine overlap within the human behavior context. Thus, we will outline, throughout the chapters of this book, the

general foundations of human behavior, biological, cognitive, social, and developmental, and to generally emphasize their contributions to all phases of psychological and physical medicine.

We have tried to show, in very general terms, what are the major bases of behavior. The chapters have been organized in four sections, each representing one of these bases.

Section One is about the neurobiological basis of behavior. It presents the student to the role of brain and the biological aspects on behavior including emotion and motivation. We look at the nervous system and at the brain in particular for clues to all the behavior processes with emphasis on health and illness related aspects.

Section Two deals with the cognitive aspects of behavior, and examines the way people learn, remember, think, reason, create, and perceive.

Section Three deals with the social bases of behavior as they range from learning to social influence of one person or a small group, to the role of the social change and cultural influences on individuals. We will emphasize on health related reactions to social factors.

Section Four traces the development of physical, intellectual, social, and emotional maturity from birth to adulthood. Also discussed in this section, the psychiatric and medical problems related to growth including behavioral, emotional, mental, and social disorders.

Section Five considers the role of individual differences and personality in understanding and predicting our unique types of behavior. The two basic areas of intellectual and temperamental differences have been examined in this section along with their behavioral and medical implications.

Section Six examines the nature of psychological and behavioral dysfunctions. It examines the basic concepts in abnormal behavior and the major types of psychological disorders, and developmental disabilities. It also considers the many forms of behavior change and related psychological therapies.

Although we will discuss these areas as if they are separate and discrete, it should be clear that each area overlaps with others. The contribution of each area to all phases of psychological and physical medicine will be emphasized.

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DYSFUNCTIONS OF HUMAN BEHAVIOR

CHAPTER ONE

UNDERSTANDING HUMAN BEHAVIOR

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UNDERSTANDING HUMAN BEHAVIOR

This book is about the contributions of psychology and related behavioral sciences (e.g., sociology, and anthropology) in medical practice. Thus, we will describe the collaborative efforts between behavioral scientists and other participants in health care in promoting and serving medicine and health fields. Although the collaboration between behavioral sciences and health is not new, it has lately been met by dramatic increased interest among behavioral scientists. Today, more than 5 percent of the members of the American Psychological Association are on the faculties of medical schools, and combinations of psychologists and medical doctors often work as teams on research and on treatment plans for individual patients (Kaplan, Sallis, & Patterson, 1993, p.10).

What's Psychology:

Psychology can be defined as the scientific study of behavior. We need to specifically define the meaning of the two key words in this definition: behavior, and scientific.

Behavior is any activity that can be observed, recorded, and measured. Behavior can be overt or covert. Overt behavior ranges from a simple reflex action such as eye

blinking to more complex patterns of behavior which have some intention or purpose including, for example, what people say or write. Overt behavior also includes physiological, or bodily, changes such as changes in blood pressure, or brain's electrical activities. Covert behavior, on the other hand, refers to internal experiences that cannot directly be observed by others. It covers a wide variety of behavior including thought processes, emotional responses such as fear or anger, memorizing, problem solving, dreaming, beliefs, and attitudes.

The term <u>scientific</u> refers to the fact that the study of human behavior is based on information, or <u>data</u>, collected through a set of systematic procedures known as the <u>scientific method</u>.

The scientific method is a system of procedures followed carefully by the scientist or the researcher to identify a problem, to gather data, to draw conclusions, and to test the accuracy of these conclusions. Behavioral scientists use many types of scientific methods as we shall see next.

THE SCIENTIFIC METHODS OF BEHAVIOR

Psychology aims to study behavior in as scientific a fashion as possible. The topics of psychology are diverse, and, therefore, the scientific study of these topics should

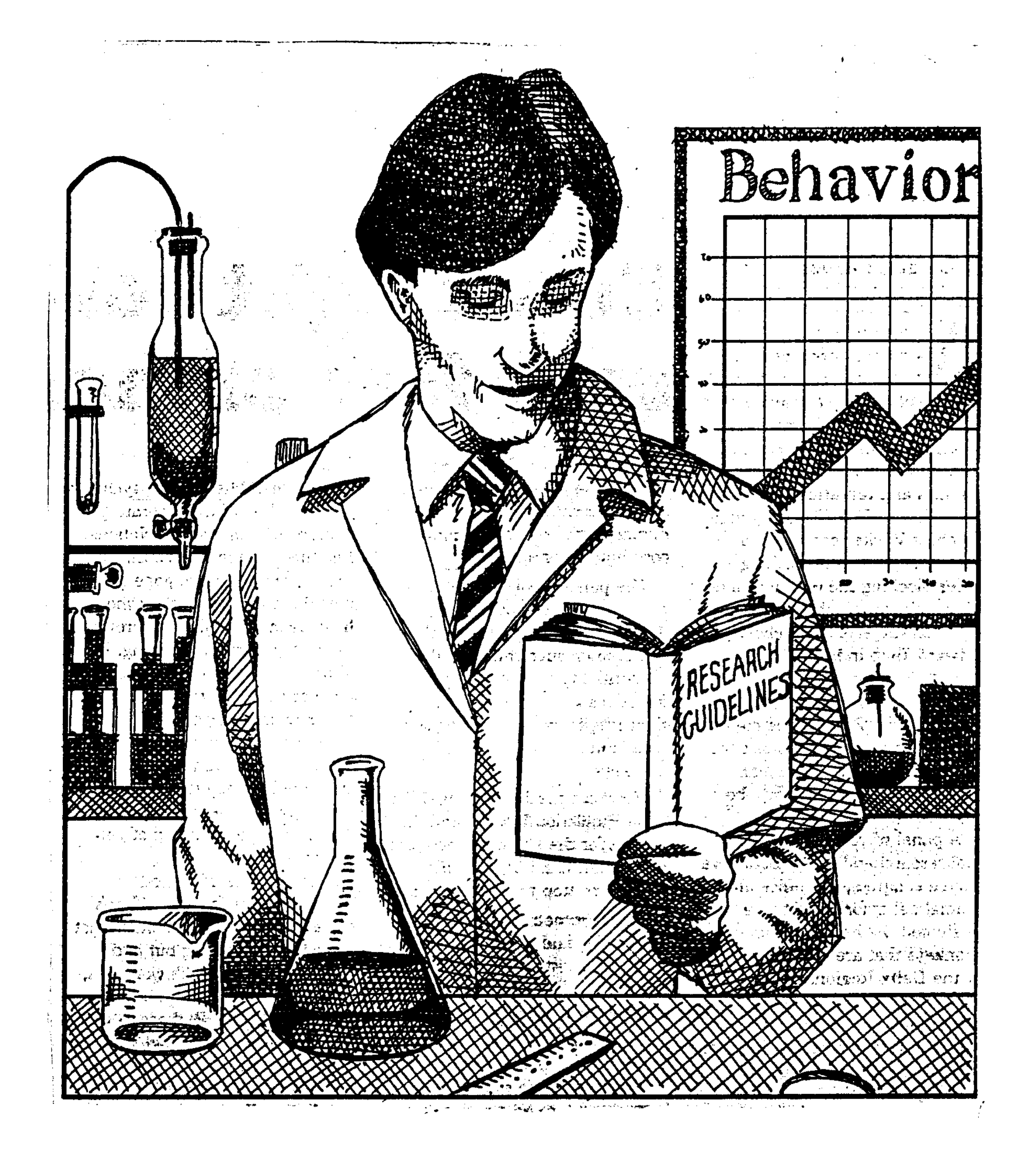


Fig. Although behavior scientists do not build their knowledge on behavior on same tools and formulas of biological and chemical sciences, they use the same systematic procedures followed by other scientists including identifying a problem, gathering data, drawing conclusions, etc.

also be diverse. To study topics ranging from reflexes, emotions, learning, and the brain to social interaction, and development, we must use many different methods. We will discuss here the most important methods use by behavioral scientists to accomplish their goals.

There are five main approaches that can be considered in studying both overt and covert types of behavior:

1. Observational Methods
2. The Case Study
3. Surveys
4. Correlational Studies
5. Experimental Studies

OBSERVATION:

Observational methods are the source of much of what the behavioral scientists have learned about the behavior of both human and animal subjects. Observation studies do not attempt to manipulate variables in a systematic fashion. Instead, inferences are made on the basis of an ongoing series of observation. An example of an observational study in health epidemiology (i.e., the study of individual behaviors and habits in relation to health outcomes), was conducted by Jessor and Jessor (1977), who were interested in alcohol, drug abuse, and deviant behavior among college

students. A group of students were evaluated during their freshman year of college in 1969. This same group was restudied in 1970, 1971, 1972 and 1973. The investigators were able to report, for example, that marijuana use increases between second and third years in college. However, it levelled off during the senior year (Kaplan, Sallis, & Patterson, 1993).

One of the basic methods in observation is the so called naturalistic observation. The main characteristic of naturalistic observation is to observe subjects in their natural environment, and to try not to attempt to interfere with the natural behavior of the subject.

Ethologists (the scientists who study animals' behavior in the wild) are among the common users of this method. For example, the Noble Prize-winning ethologist Konrad Lorenz studies of aggressive behavior in animals come from using this method (Lorenz, 1966). Part of Lorenz's research, for example, proposed that groups of animals have territories and will band together to fight off any intruders. Humans, like animals, also band together to defend their territories and that this is one of the main causes of human aggression.

In a natural setting, however, it is more difficult to reach the causal relationships among the variables than in

experimental laboratory method, where (as we shall discuss it later) variables can be controlled and isolated.

CASE STUDY:

In the case study method, the psychologist usually asks the patient about several aspects of his/her life including childhood, family, schooling, hobbies, career and so forth. The psychologist then composes a psychological biography describing how the patient's difficulties arose.

The case study is an essential part of understanding and helping people with psychological and medical difficulties. In order to treat a patient, we need to know how the patient's difficulties developed. It can also be very important research tool. In research, this method is used primarily to suggest hypotheses, and pose important questions about cause-and effect relationships among research variables. To test hypotheses, we need, of course, to turn to other research methods. In a more scientific terms, the case study method is a rich source of research hypotheses but is not a method of confirming those hypotheses.

SURVEY METHOD:

Surveys rely extensively on questionnaires and interviews. Indeed, surveys are defined as questionnaires conducted in person, over the telephone, or through the mails, that inquire into the ways a group of people thinks or acts. By using certain questions, a questionnaire aims to elicit as accurately as possible what the person thinks in, or what he/she does.

An example, is a survey of the relationship between socio cultural factors in an urban area (Manhattan, New York) and the development of psychopathology (Srole, et. al., 1975). In this survey, a sample of 1,660 people from the 400 city blocks were interviewed. Based on this survey, a relationship between socioeconomic class and psychopathology was confirmed. A higher degree of psychological impairment was associated with lower socioeconomic status.

The advantages of survey research lie in the opportunity to study cognitive and motivational variables in addition to the overt behaviors observable in natural settings (Winefield, & Peay, 1980). The basic limitation in using survey research is that surveys depend on person's verbal reports of their attitudes and behaviors. Whether



Fig.. The local market should be included in any community survey. Many potential health hazards can be identified. What problems can you observe in this picture?

people give completely honest answers to such surveys is difficult to know.

The use of surveys provides much of the foundation in psychological health research. One major survey investigation in such regard is a study reported by Kaplan, Sallis, & Patterson (1993), where 2754 men and women were studied. In this study, men who were married, who attended worship places, and who participated in community activities were significantly less likely to die within 10-year period than men who were disconnected from such functions (p. 133).

CORRELATIONAL STUDIES:

Correlation is simply a measure of how things are related to one another, or correlated. Almost all behavioral studies involve comparisons. Correlational studies in such regard give extremely important information about the relationship between two variables or more in the real world. For example, problems in the work are compared with emotional stress rates; amount of narcotics taken is compared with amount of disorganized behavior, age compared with the incidence of certain types of abnormal behavior or psychological dysfunctions, and so forth. To make such comparisons we usually use correlational methods.

Although, correlational studies give valuable information in medical and behavioral sciences, they have one serious limitation. Correlations show the degree to which two things are related to each other, but they do not necessarily show a cause-and effect relationship. If we find, for example, a correlation between hypertension and work conflict, we can not simply conclude that one causes the other. Both may, indeed, be caused by other things, like lack of skill, diet regiment, home atmosphere, etc. To reach a cause-and effect relationship, we need to use other research means such as the experimental method.

EXPERIMENTAL METHODS:

An experiment is a process in which a scientist varies one factor while carefully controlling other factors which might reasonably be expected to exert an effect on the behavior under investigation (Phares, 1979). In such cases, scientists control all factors, except an "independent" one, that conceivably have an effect on a "dependent" variable; then they actively manipulate the degree of presence or absence of that one factor. Independent variables, then, are those that are varied, or manipulated, by the scientist. Dependent variables are the ones that are theoretically affected by the independent variable. When researchers

study, for example, the effects of a newly released drug on the performance of a manual task, such as driving a vehicle, they usually rely on experimental method. In this case, the independent variable manipulated is the amount of drug administered; while the dependent behavioral variable that we anticipate will be effected by our independent variable is the ability to perform a manual task.

Controlling independent variables can be done by using control groups. A control group is a sample of persons who do not exhibit the particular variable but who are comparable in all other respects to the experimental group, the group whose members do exhibit the independent variable.

An example of the use of control group in medical research is in the assessment of placebo effects. When new drug is tested, it is important that one group of subjects actually receives the drug and that another group, the control group, is made to believe that it has received it although it actually received an inactive substitute, such as starch tablets. Then the effects of the biochemical action of the drug, as opposed to the psychological effect of receiving a drug, can be assessed.

Obviously, the advantage of experiment is the ability to investigate causal relationships by systematic exploration of the effects of the variables in question.

Perhaps the most apparent disadvantage is the difficult to generalize the results of one study. One experiment is not sufficient in itself to establish sweeping generalization. To solve this problem, behavioral scientists usually carry out more experiments. Each experiment adds a little more to our information until our knowledge about certain types of behavior is built bit by bit.

Another disadvantage flows from the subject's awareness of being under experimentation. This may lead the subject to alter his/her normal responses in an artificial way and may lead to results far from the reality of the situation. Field experiments, where the behavior is studied in the 'real world' while maintaining some control over the variables that may affect this behavior, is another experimental procedure used by researchers to solve the problem of artificiality in traditional experimental methods.

THE MULTI METHOD APPROACH TO BEHAVIORAL ISSUES:

When an issue under study is as important as the effects of a new drug or a new treatment approach on behavior, it is necessary to use more than one method or a combination of all methods to see if a relationship exists between taking the new drug, or the new treatment modality,

and the behavior. Together, such different methods are used to investigate many aspects of the problem, and provide more complete picture of the relationship among variables.

EXPLANATORY VIEWS OF HUMAN BEHAVIOR

Although behavioral scientists agree on adopting a scientific outlook at their subject of study, they may have different ideas about the nature of humanity, the nature of science, the topics they should emphasize, the methods they should use, and even in explaining the data collected via their adopted scientific method or methods. Obviously, behavioral scientists do not hold one philosophy about the nature of human behavior. In this section, we will explain the basic views held in this field and the differences among behavioral scientists in terms of their philosophical perspectives on their work.

It may be important, however, and before we proceed to explain such views to refer to the fact that, to a large degree, such perspectives all have something important to offer. No single perspective should be considered dominant or more important than the other. In practice, many behavioral scientists incorporate the views of several perspectives into their thinking. They generally borrow here and there from each other. Still, the general approaches to

explaining behavior can be divided into four general views: the neurobiological, the social/behavioral, the cognitive, and the developmental. The chapter topics of this book are designed to familiarize the medical students, and the students in other related health professions, with such approaches as applied to understanding human behavior in medical settings. However, some introductory words about the meaning and realms of these four approaches may be in order.

THE NEUROBIOLOGICAL VIEWPOINT:

The neurobiological approach, also known as the biomedical approach is the most used one in medical behavioral fields. It holds the view that human behavior is shaped by neuro (nerve cells) and biological (physical; including chemical, genetic, muscular, etc.) determinants. The underlying assumption of neurobiology is that for every behavior, there is a corresponding neurobiological event. Here, the goal of the specialist is to understand the connection between behavior and such neurobiological events.

To understand the changes occurring in the brain during learning, the chemistry of the brain in mental illness, the changes in the Autonomic Nervous System in case of anxiety, and/or the tranquilizing effects of certain drugs on the

mood, all represent the kind of questions neurobiologists would usually address.

THE SOCIAL/BEHAVIORAL VIEWPOINT:

Behaviorists hold the view, that human behavior should be studied as a product of whatever has happened to it in the environment including his social and cultural settings. The followers of this approach study behavior as responses influenced by stimuli in the environment. As we shall see later, the Russian Physiologist Ivan Pavlov, and the American Psychologists, John Watson and B. F. Skinner have pioneered the behavioral approach. They all agree that behavior is a product of basic learning from the various stimuli in the environment and our response to them. Obviously, the social/behavioral model assumes that good and healthy behavior is a product of learning from a good and healthy environment. Therefore, behaviorists tend to hold the view that we are what we learn to be. Change the environment and you also end by changing behavior.

THE COGNITIVE VIEWPOINT:

Cognition is the means by which an individual accumulates organized knowledge of his environment and self and the use of that knowledge to solve problems and modify

behavior. Thus, cognitive approach stresses the role of thought processes, perceptions, reasoning, intelligence, and related problem solving activities in the formation of behavior. The cognitive scientist, stresses that we are what we see, perceive, and think. Cognitive psychologists thus aim to specify the mental processes involved in interpreting our environment. The use of computers to develop models of how humans reason and solve problems are examples of what the opponents of this viewpoint usually do. How people overcome familiar ways of thinking and devise creative solutions to problems is another important area of study in cognitive psychology.

THE DEVELOPMENTAL VIEWPOINT:

Development may be defined as the process by which an individual's inherited characteristics change by experience. The developmental approach, therefore, assumes that any discussion of our behavior should consider a discussion of how our personality grows and matures over time, from birth to maturity. The developmental approach thus tends to focus more on physical, cognitive, and social domains of human behavior as passing through various stages of maturity. Many adherers to this view attempt to deal with everything we do or think or feel as influenced by our genes and by what we

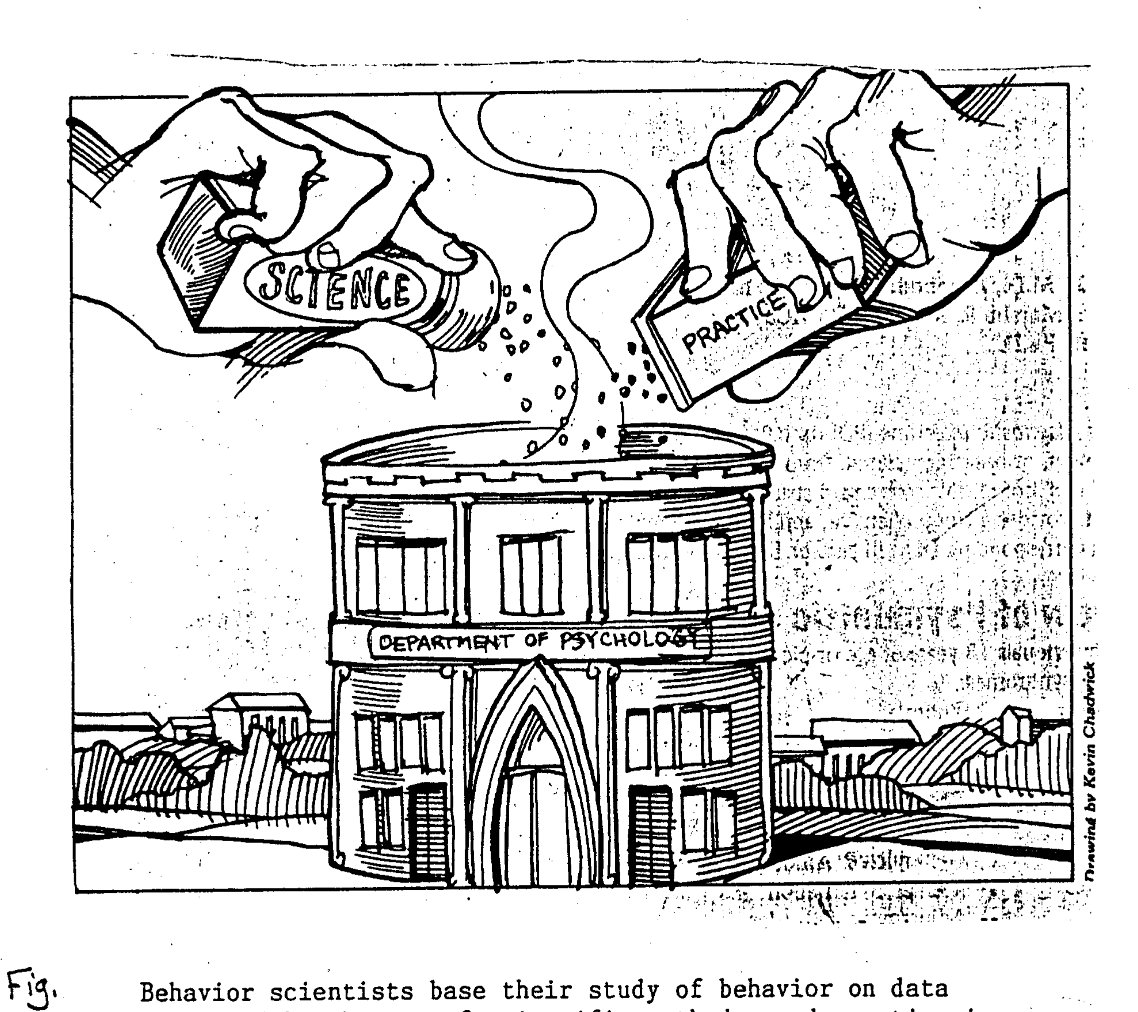


Fig. Behavior scientists base their study of behavior on data collected by the use of scientific methods and practice in applied settings including hospitals, mental health clinics, schools, etc.

have learned in the past, and then how the two interact in development.

Much of the research in developmental areas deals with infancy and early childhood. This study is important because it helps us identify child-rearing practices that produce healthy, well-adjusted adolescents and adults. Additionally, it helps us to learn the developmental timetable that regulates human growth. By knowing what experiences are necessary for normal persons, and when the organism is ready to them, we can help children reach their maximum potentials without delaying their training to acquire appropriate behavior and without pushing them too early to acquire something they are not mature enough to develop.

However, not all developmental psychologists study children. Some study development over the life span with special emphasis on adolescence, adulthood, and old age.

BEHAVIORAL SCIENCE AND MEDICINE

For generations, physicians and medical practitioners have focused primarily on biomedical approach which implied that bodily disorders are the basic determinant of physical illness and health. It was common, therefore, for medical schools to ignore the formal teaching of human behavior, and to concentrate, mainly, on biomedical training such as

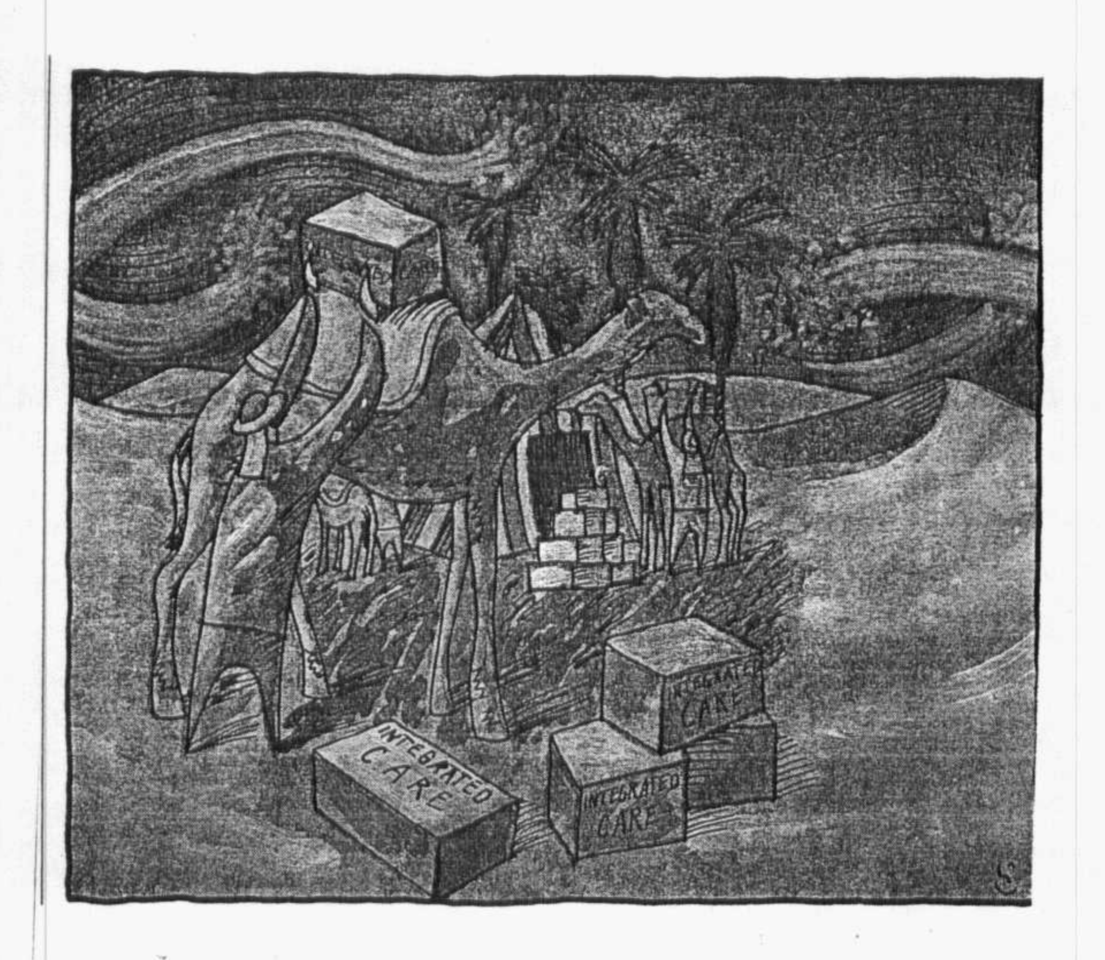


Fig. Now, health practitioners tend to adopt an integrated care system that combines behavioral, social, and medical factors to promote health and prevent diseases.

administering drugs and operating surgery for patients. The study of human behavior's role in physical and mental health was almost absent.

With the growing of the modern psychological studies with its emphasis on research and methodology in health areas, a core of subject matter labeled as <u>behavioral medicine</u> has emerged. Behavioral medicine is a promising new field of psychology which implies that the composite of behavioral factors including life-style, emotional and attitudinal states are essential factors in health promotion and disease prevention. To illustrate the importance of behavioral factors in health, it may be appropriate to refer to what Koop (1983), the U.S. Surgeon General, stated in an invited address in one of the American Psychological Association annual meetings. Koop stated that the physician who relies on drug therapy only will suffer failure and frustration in the long run. As a new field of study, behavioral science has made substantial contributions to the understanding of healthy behaviors and to the comprehension of the factors that undermine health and often lead to illness.

Theoretically, behavioral medical science including health psychology, takes the position that behavioral factors are implicated in all stages of health and illness,

ranging from those behaviors and states that keep people healthy to those that produce severe and long-term diseases.

Thanks to the emergence of this field, the role of behavioral factors in the development of many types of physical and psychological diseases is increasingly clear. For example, there is accumulated evidence that 25% of all cancer deaths and approximately 350.000 premature deaths from heart attack could be avoided each year by modifying one risk behavioral factor: smoking (American Heart Association, 1988). A 10% weight reduction in men aged 35 to 55 through dietary modifications and exercise would produce an estimated 20% decrease in coronary artery disease (American Heart Association, 1984a, 1984b); it would also lower the degree of degenerative arthritis, gastrointestinal cancer, diabetes, stroke, and heart attack (Taylor, 1990).

Other examples come from the study of the link between emotions and health. More recent work has enabled us to identify the role of positive emotional states and coping styles in maintaining our health. Chief among these is the role of optimism. Research show that optimists appear to experience fewer physical symptoms and they show faster or better recoveries from certain illnesses (Scheier & Carver, 1985).

Clearly, then, medical practitioners need to understand the connection between medical and behavioral sciences, and such practitioners, especially those in primary care, must get used to employing both, rather than relying either on one or the other (Melamed, 1984, p. 50).

BEHAVIORAL SCIENCE IN HOSPITAL SETTINGS

In the last two decades several milestones in the evolution of behavioral science as a health care profession have occurred. We shall examine in the following the practice of psychology in hospital settings as an example of the evolution of medical behavioral sciences.

PSYCHOLOGY IN HOSPITAL SETTINGS:

According to statistics from U.S., currently approximately 60% of all psychology internships are in hospital settings, and nearly 2,000 psychologists work in medical schools (Carr, 1987; Enright et al, 1990). The range of services and clinical expertise provided by psychologists within the health care system has increased over the years. Indeed, the number of psychologists in health care in the U.S. increased from 20,126 in 1974 to 45,536 in 1985 (Dorken, Stapp, and VandenBos, 1986).

Psychologists are uniquely trained to diagnose patients objectively by means of personality, intellectual, and neuropsychological tests (APA, 1988). It is the development and use of these tests that distinguish psychologists from other medical health service providers.

Personality assessment, as we shall see later, can, by means of objective and projective procedures, reveal many things about a patient's ability to deal with stress, and how the patient's style of response affects everyday functioning.

Measuring intellectual functioning, including, for example, intelligence and other abilities is unique to professional psychology. Psychologists can determine not only the general level of functioning but also the relative strengths and weaknesses that can form the basis for treatment.

Similarly, the use of neuropsychological instruments bring greater level of understanding the quality and consistency of brain functioning. Neuropsychological evaluations provide the patient and the treatment team with objective evidence of the functions of the brain and can provide critical directions for specific rehabilitation plans.

Psychology also has along history of demonstrated expertise in the area of psychotherapy and treatment interventions. The goal of the psychologist here is to give control to the patient throughout education and training rather to make the patient soley dependent on biomedical interventions. The settings in which these services can be offered are as varied as the services themselves. They can be offered independently, or in conjunction with other departments in the hospital.

Most other treatment modes including writing behavioral orders, conducting individual, group, and family treatment are within the scope of the psychologist.

In general medical, surgical, and rehabilitation hospitals, there is a growing demand for psychological consultation from the emergency room to the delivery room (Enright, 1988). Psychologists consult with pediatricians, neurosurgeons, psychiatrists, and many other specialists to provide diagnostic and therapeutic services. These services include pre-and post surgery preparation and assessment, hypnosis, pain control, stress management, interventions to increase treatment compliance, and behavioral treatment plans to help patients to adjust to new way of life (Enright, et al, 1990).

SUMMARY

Behavior is any activity that can be observed and/or measured. Behavior can be overt, such as simple reflexes, physiological or bodily changes, or covert which includes internal experiences that can not be directly observed.

Behavioral scientists use the scientific method in their attempts to identify factors influencing behavior.

The scientific method is a system of procedures we follow to collect our information about both overt and covert types of behavior.

There are five main scientific methods labeled as: naturalistic observation, the case study, surveys, correlational studies, and experimental method.

It is necessary to use more than one method or a combination of all methods to study important issues in human behavior.

Scientists developed four general perspectives about the nature and explanation of our behavior: the neurobiological, the cognitive, the social, and the developmental. The chapter topics in this book were designed to familiarize medical and medically related students with such viewpoints as applied to understanding health and illness issues.

The applications of behavioral sciences in the field of medicine are covered by the so-called medical psychology or

behavioral medicine, which combines behavioral and social factors in treating and preventing of both psychiatric and physical disorders.

Historically, the study of the role of behavioral factors in health and illness have been ingrained in the thinking of Greek and Islamic practicing physicians. Ibn Sina and Al-Razi were cited as examples.

The role of behavioral and psychological fields in general hospitals were discussed in reference to diagnosis and treatment of physical, neuropsychological, and psychiatric diseases.

SECTION ONE

THE NEUROBIOLOGICAL FOUNDATIONS OF HUMAN BEHAVIOR

CHAPTER TWO

BIOLOGICAL FOUNDATIONS OF HUMAN BEHAVIOR

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BIOLOGICAL FOUNDATIONS OF HUMAN BEHAVIOR

The body and behavior are intimately related, and scientists study the direct and indirect effects of body on our psychological behavior. In this chapter we shall outline the role of the brain, nervous system, endocrine system, and genetic influences in understanding our behavior.

THE BRAIN

THE STRUCTURE AND FUNCTION OF THE BRAIN:

In the very simplest terms, the brain is an organ like the heart or the lungs. The brain weighs about 3 pounds. However, it is the most demanding part of the body. It uses up to 20 percent of our oxygen all by itself, eats up most of the sugar we take in, and operates of 20 watts of electrical power. We don't glow at night because the brain is packed tightly inside bony shell we call the skull.

The brain is made up of more than 15 billion nerve cells. There are two types of cells in the brain, neurons and glia cells.

Neurons:

These are the cells that give the brain its unique characteristics, such as the ability to sense the environment, and to think and learn. They do not all have the same tasks to perform. Sometimes group of neurons

function rather independently, but sometimes they cooperate to achieve some common goals.

Glia Cells:

Neurons make up only about half the cells in the brain. The remaining half are glia (glue) cells. The main function of these cells, as its name implies, is to hold together the neurons, and to provide them with nutrients.

The brain has three general functions. The first is a sensory process via which brain takes in information, and monitors everything in our immediate environment. It senses light, sound, smell, taste, and how things feel. The second function is to interpret this information and make decisions based upon it. These decisions can be influenced by what we already know (memory), by our attitudes, by our emotions, and by many other factors that make each of us unique. The third function is to command the body to take action. If we think of sensory information as the input of the brain, then controlling the muscles or motor behavior is the output.

THE ORGANIZATION OF THE BRAIN:

Neurologists have identified three successive evolutionary brain layers. The brainstem, the limbic, and the cerebral cortex.

The brainstem is the oldest portion of the brain, and is shared with lower animals. It controls aggression territoriality, and certain forms of ritual social behavior

in animals and automatic body functions such as breathing and blood pressure.

One of the major components of the brainstem is the **thalamus**, Greek word for "bed", which serves as a sensory relay system, Sensory information from all the senses except smell is sent to the thalamus, and then routed to the appropriate area of the cortex. So, one of the functions of the thalamus is to code information from the lowe areas and recode for the cortex.

The parts surrounding the brainstem is the **limbic** system which contains the **limbic brain**. The limbic brain contains a number of structures that play a vital role in emotional behavior.

A major component of the limbic system that interest behavioral scientists is the "hypothalamus". The hypothalamus controls many basic behaviors such as hunger, thirst, temperature, body rhythms, and sexual behavior. Neurologist James Olds documents evidence that the hypothalamus is important in experiencing pleasure. In one experiment, Olds rewarded rats for pressing a small bar by giving them electrical stimulation of the hypothalamus. The behavior of these rats was astonishing. They pressed the lever ar a rate of more than 2,000 times an hour for twenty-four hours straight. (Olds, 1958). Obviously, the electrical stimulation of the hypothalamus can be pleasurable, and reports from humans who have had electrodes

in their brain support this theory. Some people who have this part stimulated report that such stimulation gives them a feeling of well-being. Some others say that it evokes memories of pleasant events. (Crider et al., 1983, p. 50; Heath, 1964).

The largest structure in the limbic system is the <u>hippocampus</u>, a Greek for "seahorse". It is believed that the hippocampus is involved in a number of different functions. One in which it plays an important role is memory. Human with Hippocampal damage suffer severe memory disorders (Crider et al, 1983).

The thin gray outer layer that surrounds the limbic system is the neocortex or cerebral cortex (also, called the cortex). The neocortex is the thinking brain, and represents the part of the brain that distinguishes human beings from less highly developed mammals. Also, it distinguishes one person from another. Our creative skills, sense receptors, speech centers, and the nerve cells that control our voluntary movements take place in this part.

Brain Damage:

Brain damage can be defined as a persistent but relatively non-progressive chronic abnormality of the brain, manifested by impairment of one of its major motor, sensory, and intellectual functions (Smith, 1984). Perhaps the most two relevant types of brain damage are: cerebral palsy in

the motor (muscular) sphere; and mental retardation in the intellectual sphere.

Mental retardation, as we shall see in a later chapter on dysfunctions of human behavior, has several factors. However, brain injuries at birth can account for three to five percent of mental retardation (Smith, 1984).

Cerebral palsy means a loss of muscular power due to interference with the nervous system. Anoxia, a deprivation of oxygen, is reported to be the most important factor in cerebral palsy (Smith, 1984).

THE TWO HEMISPHERES:

The neocortex is located in the **cerebrum**, the main part of the brain. The cerebrum is divided into a left and a right hemispheres. Beneath the cerebrum lie all the older organs, such as the cerebellum, thalamus, and brain stem, with which the cortex communicates.

The cerebrum is divided into a left and aright hemispheres. The cerebral hemispheres are separated by a deep fissure, or crack that runs down the center from front to back. The two hemisphere are joined together by a bridge of very special tissue called **corpus callosum**, two Latin words meaning 'hardened body.' The corpus callosum serves as a telephone cables running from one side of the brain to the other. It lets the right side of the body know what the left side is up to. In other words, the corpus collosum

helps coordinate perception and behavior. When this bridge of nerves is damages or surgically severed for medical reasons (as is done in some cases of epilepsy), the result is a person with a **split brain**.

The two hemispheres are physical **mirror images** of each other, just as the left half hand is mirror image of right hand. Despite this, both hemisphere have major functional differences between them. The right cerebral hemisphere mainly controls the left side of the body, and the left cerebral hemisphere mainly controls the right side of the body. Thus if one is right-handed, the left hemisphere is his/her dominant hemisphere.

Since the majority of humans tend to use their right hands better than their left hands, the left hemisphere is considered the **dominant hemisphere**, and the right hemisphere is called by many as the **minor hemisphere**.

In terms of functions of both hemispheres, the left hemisphere **executes** most of our body movements. When you write, the left hemisphere issues the orders that your right hand follows. When you speak, it is the same dominant left hemisphere that make the tongues, lips, and vocal cords move. The right hemisphere is known as the perceptual hemisphere, emotional hemisphere or monitoring hemisphere. It understands` language, but neither talks nor writes except under rather unusual circumstances (McConnell, 1983). However, dominance for the left hemisphere is not absolute.

There are ambidextrous people who can write and throw with either hand.

Neurologists have known for a long time that unilateral damage to equivalent areas in the two hemispheres does not always result in similar functional impairment. For example, damage to the inferior frontal and posterior temporal/parietal regions in the left hemisphere produces various disorders of language whereas damage to the corresponding regions in the right hemisphere rarely does so. This lead scientists to believe that the left hemisphere contains our "verbal" abilities, while the right hemisphere has scattered areas for these functions.It is also suspected that the right hemisphere is used for handling certain types of perception such as visualizing the form of something, rather than describing it verbally.

Neurologists have also studied the effects of hemispheric damage. Patients who have damage to the left hemisphere can still call on the right for emotional responses, Thus, they are quite concerned about their injuries. On the other hand, damage to the right hemisphere reduces emotional responses, so most patients with damage to that side show much less concern for themselves and are unable to tell if someone is angry, happy, or serious (Geschwind, 1979; McMahon & McMahon, 1986).

THE LOBES:

The cerebral cortex sits on to and surround the old brain. It is divided into four divisions or lobes; the frontal lobes, the temporal lobes, the parietal lobes, and the occipital lobes. Although they overlap in terms of functions, some functions are more located in one or another as we shall see.

Frontal Lobes:

The frontal lobes are of considerable interest to students of human behavior. They are responsible for what we call social control, or activity planning. The neurons in the frontal lobes hold attention to the task at hand and arrange to deal with the future. Surgeons used to operate on mental patients a lobotomy operation through which they destroy neural connections to the frontal lobes to make the person more manageable. Clear personality changes occur. The person becomes colorless and show little emotional responsiveness. In addition irreversible effects can occur including child-like behavior, lack of insight, and suffering from fits of temper. Despite these changes, lobotomies are still operated on mentally violent patients, but most psychiatrists and psychologists object to it.

Temporal Lobes:

The temporal lobes are involved in hearing, and speech. These lobes are divided into two lobes, one in each

hemisphere. Aphasia (an impairment in the ability to speak or to understand spoken language), is connected to damages occurring in the temporal lobes in the left side (Gatz, 1973).

Occipital Lobes:

The occipital lobes at the back of the brain, helps in processing and analyzing incoming material from the visual system. Neurological studies show that this lobe is very complicated and very important for humans since we rely so heavily on our sense of vision, more than any other sense. However, it was found that frontal lobe damage leads to disorganized eye-pattern movements. This indicates that occipital lobe depends on the frontal lobe for a thorough integration of what we see.

Parietal Lobes:

The parietal lobe sits behind the frontal lobe and above the temporal lobe. Its major job is to handle bodily sensations or sensory material. Electrically stimulating different parts of this area causes one to feel that different places in the body (e.g., tongue, ear, or toe) are being touched.

THE ELECTRICAL ACTIVITY OF THE BRAIN:

The brain transmits its messages through electrical signals, called electrical waves of the brain. These waves are recorded by using a device named **electroencephalograph**

or EEG machine. This EEG machine translates electric energy from the brain into visual patterns on a screen, just as a television set translates electrical energy into patterns you can see on the picture tube.

One of the first things revealed by an EEG record is that the electrical activity of the brain changes depending on what the person is doing or even thinking at the time. They can signal the different states of the individual such as if the person is relax, awake, or even if he/she has brain damage, or learning disability.

Neurologists identified 3 normal types of brain waves: (a) rapid brain waves with rather a random pattern called <u>beta waves</u>, or the <u>activity pattern</u> that signal alertness or awake attention; (b) regular but fast waves called <u>alpha waves</u> that signal relax and closed eyes position; and (c) large and slow waves that occur when we are deeply a sleep called <u>delta waves</u>.

Sometimes the EEG records abnormal or unusual waves. One of these abnormal waves take on a fast and almost violent form that signals a **seizure**. Seizure activity is usually good indicator that part of the brain from which this wave is recorded is damaged. It is obvious, then, that recording brain waves is a good diagnostic tool for many types of brain damage, epilepsy, and learning disability.

THE SPINAL CORD

The central nervous system consists of the brain and spinal cord. We have already discussed the role of the brain. But the brain is not alone in controlling behavior. Other types of behavior are controlled by the spinal cord. reflexes such as withdrawing your hand from a fire is done by the spinal cord. The spinal cord consists of bony knots that runs along our back. These knots consists of a complex array of connections with nerves going to and from them to automatically control the stomach, kidneys, intestines, etc, as well as motor function. It also acts as an independent unit for reflexive behaviors.

THE AUTONOMIC NERVOUS SYSTEM

Practically speaking the autonomic nervous system, or ANS, relieves the higher brain centers of thinking about certain routine bodily function by doing them on its own. The ANS's functions include breathing, digestion, heartbeat, and glandular secretions. The ANS is simply a communication network linking the brain and spinal cord with the visceral organs, blood vessels, and glands.

The ANS has two major functions, sympathetic and parasympathetic. The neurons of the sympathetic function leave the central nervous system from the middle portion of the spinal cord. The neurons of the parasympathetic function

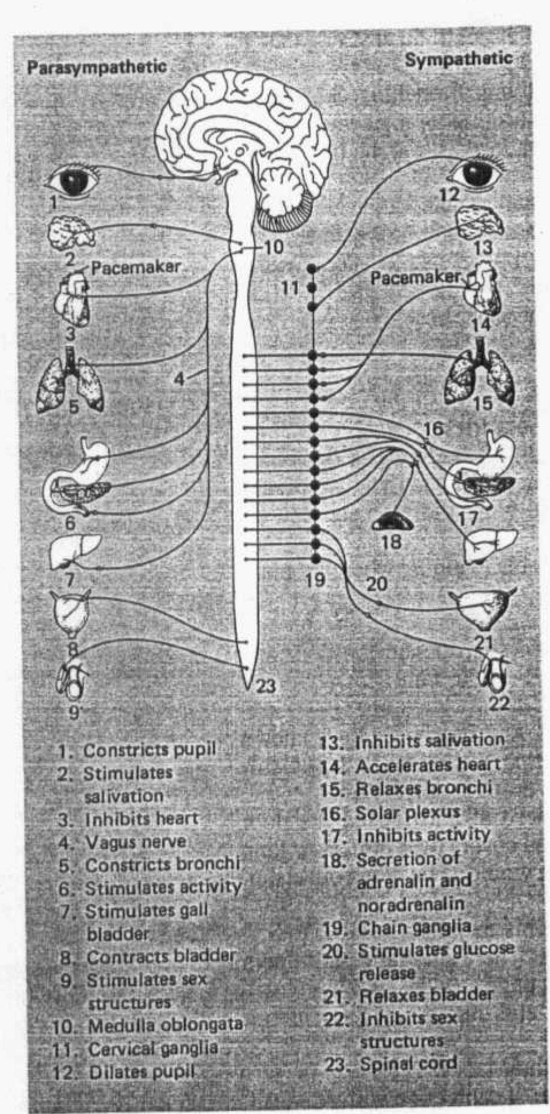


Fig. . Schematic layout of the autonomic nervous system.

Fig. Schematic layout of the autonomic nervous system.

connect with the central nervous system either at the lowest segment of the spinal cord or at the brainstem. The two functions control most of the visceral organ, but having opposing effects. The sympathetic function activates the body organs in cases of emergencies, strong emotions, or threatening situations. During sympathetic arousal, the heart races, blood vessels constrict (causing increased blood pressure), palms sweat, and the adrenal glands and pancreas are stimulated, releasing more blood sugar. It also stimulates the lungs to breath faster and harder. Obviously, the sympathetic division acts like an emergency system that stimulates physiological functions in order to prepare the organism for action.

The parasympathetic division, on the hand, tends to reduce physiological arousal and help the organism return to normal. It acts as a brake on the sympathetic nerves by keeping things running smoothly and even slowing down body functions such as blood pressure and heart rate. Thus the two functions tend to oppose, but balance one another, and as such play a major role in understanding our emotions as we shall discuss later.

THE ENDOCRINE SYSTEM

The endocrine system is an important group of biological structures working with the nervous system.

It communicates information about our condition or needs (hunger, temperature, sex needs, emergency situations, etc.) by sending chemicals through the blood stream to various parts of the body. This system consists of a group of glands that produce chemical substances, called <u>hormones,</u> secreted directly into the blood stream. Hormones (from Greek "to activate") greatly affect the functioning of the body and the course of its development.

<u>THE ENDOCRINE GLANDS AND BEHAVIOR:</u>

The <u>pituitary</u> is the master gland of the body. It activates many of the other glands, and it also secretes its own hormones, called **growth hormones**. In addition to causing muscle and bone growth, this gland releases other types of hormones that stimulate the sex glands.

The <u>thyroid gland</u> regulates the body's metabolism (the rate at which the body manufacture energy from food or produce new cells). Too much thyroid hormones cause nervousness, and weight loss; while underproduction can cause loss of hair, increased sensitivity, and tired feeling.

The two <u>adrenal glands</u> are located at the upper end of the kidneys. When stimulated, they secrete a number of hormones which help the body respond to an emergency. They act on the sympathetic nervous system to regulate blood pressure and heart beat, as well as blood sugar level.

The gonads are merely a broad term for sex glands. The female sex glands are called the ovarles, and the male sex glands the testes. The ovarles secrete estrogens which trigger breast development and ovulation. The testes secrete androgens which develop pubic hair , sex drive, and sperm production.

GENETIC FOUNDATIONS OF BEHAVIOR

Many of our physical characteristics and behavior are influenced by what we inherit. Our inheritance begins at conception, when the egg cell of the female is fertilized by the sperm cell of the male. The egg cell looks much like many human cells, that is tiny round blob of material with a dark nucleus in its center. The nucleus contains the so called chromosomes which constitute the basic structure of heredity. Each chromosome contains thousands of smaller genes lined up in a row. It was not until 1960 that scientists were able to isolate and study single genes.

Most of the cells in our body contain 46 chromosomes; 23 of them come from sperm of the father and 23 come from the ovum, or the egg of the mother at conception. These 46 chromosomes are composed chiefly of molecules called DNA. The DNA is chiefly an acid found chiefly in the nucleus of the cell, and arranged in two strands with the genes along these strands.

During the development of the body structure from the original cell, it is the genetic instructions transmitted by the DNA that blueprint how each cell will develop and what its function will be. Genes are blueprinted to new cells. In doing this , some new cells become liver cells, some become brain cells, others become blood or muscle cells, and so forth. The new blueprinted cells determine physically; the body's characteristics: hair and eye color, potential height, sex, and so forth.

The genetic influence on behavior is still a matter of research and heated discussion. However, studies of identical twins who are separated shortly after birth and reared a part from one another give evidence that some types of our behavior such as our intelligence do have a hereditary component as we shall discuss later. Other twin researchers suggest that roughly 50 percent of our personality characteristics and intelligence seem to have a hereditary base (Bouchard, 1983; McCmahon & McCmahon, 1986). Also, there is fairly satisfactory evidence for genetic influences in the development of both schizophrenia and manic-depressive mental illnesses. Alcoholism is another serious medical and behavioral problem for which there is also evidence of a genetic predisposition (Defries & Plomin, 1978; Winefield, & Peay, 1980).

ASSESSMENT OF NEUROPSYCHOLOGICAL FUNCTIONS

Neuropsychological assessment involves the measurement of behavioral signs that reflect healthy or impaired brain functions. Professionals trained in the methods of <u>clinical neuro-psychology</u> (e.g., the scientific study of relationships between brain anatomy or physiology and behavior in humans) have developed a large amount of tests for neuropsychological assessment (Kendal & Norton-Ford, 1982; Reitan & Davison, 1974). Generally, these tests designed to assess cognitive functioning (such as memory and language usage), and for the most part scored right or wrong within a given time (Kaplan, 1989). An example of the most widely used tests in such regard is the <u>Bender-Gestalt Test</u> (Bender, 1938; Hutt, 1969). It requires the subject to reproduce nine two-dimensional figures on one blank sheet (see Fig. 5). The examiner presents each figure one at a time on a card, carefully placing the card in front of the subject. The subject is instructed to copy them as exactly as he/she can. The goal of this test is to identify signs of perceptual-motor problems due to misperception or incorrect copying.

Given the wide range of behavioral, cognitive, and affective dysfunctions that can be caused by brain lesions, clinical neuropsychologists use several batteries consisting of several tests to provide a comprehensive evaluation of

Fig. Items from the Bender Gestalt Test designed mainly for the diagnoses of brain damage

each patient's deficits and capabilities. The two widely used batteries are the Luria-Nebraska Neuropsychological Battery, and the Halstead-Reitan Neuropsychological Test Batteries (Jones & Butters, 1986). The Luria-Nebraska Battery consists of 269 items comprising 11 subscales designed to assess a wide range of neuropsychological functions including motor functions, receptive language, expressive language, memory, and various higher cognitive skills related to intelligence. The Halstead-Reitan Neuropsychological Test Batteries consists of about 12 tests, examples of which are the Trail Making Test, the Strength of Grip Test, and Finger Oscillation Test. The Trail Making Test requires the subject to connect consecutively numbered circles and lettered circles scattered on a page. The test is thought to assess psychomotor speed, and visual scanning. The Finger Oscillation Test is a test of finger-tapping speed, performed with each hand; while the strength of Grip Test is a measure of grip strength taken on a hand dynamometer with each hand.

By all accounts, the field of neuropsychological assessment has recently become one of the fastest growing specialty within psychology and has gained increased recognition as a valuable tool in the diagnosis and treatment planning for a significant subset of psychiatric and neurological patients.

SUMMARY

In this chapter, we outlined the role played by body factors on our psychological functions. The particular roles of the brain, the nervous system, the endocrine system, and genetic influences were explained.

The scientific study of relationships between brain anatomy or physiology and human behavior has been developed as a new field of study called clinical neuropsychology. Professionals trained in this field have developed a large amount of tests for neuropsychological assessment such as the Bender-Gestalt Test, Luria-Nebraska Neuropsychological Battery, and the Halstead-Reitan Neuropsychological Batteries. The field of clinical neuropsychology has recently become one of the fastest growing specialty, and has gained recognition for its significant role in the diagnosis and treatment planning for both psychiatric and neurologically impaired patients.

CHAPTER THREE

EMOTIONS AND EMOTIONAL STRESS

We have all experienced, to one degree or another, such feelings as anger, fear, grief, jealousy, anxiety, depression, excitement, joy, embarrassment, and wonder.These and dozens of other feelings are part of everyone's daily living. We will consider here the nature of emotional experiences, the methods used to describe and measure them, and the interaction between feelings and psychological health.

WHAT ARE EMOTIONS?

Emotions are complex and difficult to study. Psychologists have not settled on one definition of emotion. Although we all know what it means to feel happy, sad, shy, angry or frightened, this knowledge might not be the same for each individual. Persons will differ in describing the emotions they experience. It may be better, therefore, to describe the correlates of emotional experiences rather than to try to define it in one single sentence.

Emotions may better be described as a complex correlated reactions to external stimuli such as threat, seduction, or loss. Psychologists were able to identify three major components in any emotional experience:

subjective feelings or internal cognition, physiological changes, and emotional body reactions.

SUBJECTIVE FEELINGS:

If you have ever experienced extreme fear , you will recognize that unpleasant subjective feelings that controlled you during such experience. That unpleasant feeling is indeed one part of any emotional experience. Psychologists classify emotional feelings as either pleasant or unpleasant. In addition, there is the view that emotions can be evaluated based on weak to strong and simple to complex dimensions. For example, feelings such as anxiety are complex, unpleasant that may vary in intensity. It is difficult, however, to go beyond simple classification of subjective feelings because they are extremely difficult to describe. It is much easier to describe our emotional reactions rather than to describe the subjective feelings.

EMOTIONAL EXPERIENCE:

Observe a person during frightening experience, we observe that posture becomes tense, and the hands tremble.These and other emotional expressions are particularly important for the study of communicating emotions with others. A marked shift in the tone of voice, body posture, or facial expressions is very common in the communication of emotions from one to another in both human

and animals. Prolonged eye contact can communicate positive feelings, but staring at someone for a long cannot always communicate the same positive communication. A person who likes you can communicate his feelings through gentle body postures, gentle touching, etc.

PHYSIOLOGICAL CHANGES:

When we experience any emotional experience, we tend to experience physiological changes inside us. Most people closely identify a pounding heart, sweating palm, and "butterflies" in the stomach, with the experience of emotion. This observation is valid since physiological changes taking place in the body are the core of fear, anger, and other emotions. Such changes includes alterations in heart rate, blood pressure, perspiration, digestion, eye dilation, hair erection, fast breathing. Most of these changes are caused by release of adrenaline into the bloodstream, and by actions of the nervous system.

PHYSIOLOGICAL SOURCES OF EMOTIONS

The emotional response is mediated largely by the autonomic nervous system (ANS) and the endocrine system. The ANS controls the glands, smooth muscles responsible for involuntary, self-regulating functions such as circulation and digestion. The ANS has two divisions, one called the sympathetic NS, and the other, the parasympathetic NS.

The sympathetic is mainly responsible for what has been called the 'fight or flight' reaction of emotional excitement. The body is in a state of emergency readiness for action. For example, heart rate is accelerated and more blood sent to the muscles and brain, and less to the skin and digestive organs. The pupil of the eye is dilated, skin temperature is lowered by vaso-constriction followed by sweating, and the adrenal glands secrete hormones into the blood which further increases the arousal level. Adrenaline and noradrenaline intensify the effects of the sympathetic ANS, obtaining the release of sugar stored in the liver so that there is energy for quick action. Most of the sympathetic reactions increase the chances that a person or an animal will survive an emergency. However, death may occur as a result of prolonged extreme arousal, as when a wild animal goes into shock upon capture.

The actions of the parasympathetic ANS are generally reverse emotional arousal and calm and relax the body. Under parasympathetic influence heart rate and blood pressure decreases, digestion is facilitated, and a state of relaxation prevails. In addition to restoring balance, the parasympathetic system helps build up and conserve bodily energy.

The parasympathetic system responds much more slowly than the sympathetic. For example, it takes us almost 20 or

30 minutes to subside signs of arousal after the disappearance of the threat. The arousal function can happen immediately after experiencing the threatening situation.

Although the work of the two branches is usually antagonistic, the functioning of the body reflects the balance between them.

There are also more complex interactions between the two branches. For example, the parasympathetic functions of urination and defecation may be stimulated by sympathetic arousal, and the sexual response shows a combination whereby sympathetic arousal is necessary for ejaculation in men, but inhibits erection. Therefore, impotence is treated by means of anxiety reduction methods.

EMOTIONAL STRESS

Stress can be defined as anything that causes intense and prolonged emotion. It has been known for a long time that physical difficulties, including heart diseases and high blood pressure, and disrupted social or emotional life are associated with stress.

DEMANDS ON THE BODY AS STRESSORS:

The manner in which stress effects health has been demonstrated long time ago by a Canadian biologist called Hans Selye. Selye noticed that people with different diseases share many common symptoms. They all showed a loss

of appetite, muscular weakness, and decreased interest in their environment. He proposed that different diseases produce a common stress syndrome, in addition to the specific syndrome associated with the particular forms of diseases.

To prove this, Selye exposed laboratory animals to different types of stress including exposure to very cold temperature, and injection with many different toxic substances. All animals produced common reactions: various glands of the body immediately spring into action, and the body, as in emotions, automatically tries to defend itself. The adrenalin gland, in particular, becomes enlarged and produce more adrenalin. Because of this intensive activity in the adrenalin glands, tissues is broken down to become sugar and provide energy. Selye has proved that different disease agents and toxic substances could all be regarded as stressors that cause problems on the body over and above their specific effects. Selye then defined stress as any demand made on the body and causes it to over respond.

Selye believed that continued exposure to stress can not be tolerated for so long. At first, the stress is a hardship that requires much energy. A period of adaptation then occurs as we learn to cope and resist stress. After a period of resistance to a stressor, exhaustion and death ensued. Selye called the body's ability to resist a stressor

"adaptation energy", but just as an overused machine gradually wears out, so the body loses its adaptation energy and death ensued (Selye, 1973; 1976). According to Selye, the weakest link in the body's defenses breaks first, and that weakened system is then susceptible to problems. In the case of immune system failure, cancer may result. In the case of cardiovascular system, there may be heart failure. Stressors may combine to trigger or aggravate these systems. For example, starvation results in the release of glucose, which may alter the circulating pattern and decrease leucocyte responses (Kaplan, Sallis & Patterson, 1993, p. 108).

LIFE EVENTS AS STRESSORS:

Real-life situations, good or bad, cause stress. Holmes and Rahe, two eminent stress researchers, have developed a famous list of 43 stressful life events (e.g., death of spouse, retirement, change in residence, divorce, marriage, etc.) They assigned a certain weight to each event ranging from 100 units for death of spouse to 1 for minor violations of law. Interestingly, they found that if people have approximately 300 units operating in their lives, chances are very good that within two years they will suffer a major illness, thus showing the effects of psychological factors on physical health (Holmes & Rahe, 1967; Rahe, 1978).

Stresses related to separation and loss (such as death of spouse, divorce, marital separation) were found the most stressful events for most people. One study compared the death rates of nearly 4,500 widowers over the age of fifty-four with the death rates of married men of the same age. The results showed that the death rates of the widowers increased over forty percent in the first six months of mourning, and then declined again to the levels of the married men (Lynch, 1977). Obviously, severely life vents may produce stress that triggers ill health, and that the more stress a person experiences, the greater are his/her chances of becoming exposed to illness and dying.

A number of researchers have studied the specific types of illnesses that are associated with stressful life events. For example, it was found that minor ailments such as cuts, bruises, headaches, and colds were more likely to be experienced on days when an individual is exposed to an undue amount of stress (Holmes & Holmes, 1976). The occurrence of more serious physical illnesses, can also be related to the presence of life stress. Myocardial infractions, sudden cardiac deaths, fractures, athletic injuries, have been all reported to occur with greater frequency after a clustering of stressful life events (Braunstein, 1981).

There is also a positive relationship between life stress and the onset of psychiatric disorders. According to studies done by Paykel (1974), suicide attempters, report having the most stressful events, depressives experience the next highest number, and the schizophrenics have the least number of stressful events of the three groups.

EMOTIONS AND HEALTH

There is abundant evidence that mental and emotional processes are implicated in some way both in good health and in the majority of the physical diseases that afflict human kind. The relationship between psychological factors and good health has also been well documented (e.g., Jones, 1977), that is positive emotions seem often to produce a certain immunity to physical diseases or to be associated with speedy and uncomplicated recoveries when disease does strike (Coleman, 1984). The patient who believes the treatment is going to be effective has a much better chance of showing improvement than does the patient who is neutral or pessimistic--even when the treatment is subsequently shown to have no direct or relevant physiological effects. This has become known as the placebo effect, and it accounts in part for the controversies that arise periodically between the scientific community and the general public regarding the efficacy of certain drugs in the treatment of

cancer being a well known example. The fundamental unity of emotion and body is perhaps nowhere better documented than in health and illness (Robinson et. al. 1972) has noted that any emotional stress tend to aggravate specific disorders, such as rheumatoid arthritis, infectious diseases, bronchial asthma, and depression.

PSYCHOPHYSIOLOGICAL DISEASES

The psychosomatic diseases add another confirmation to the problem of the emotion-health relationships. Psychosomatic diseases are usually studied under psychophysiological disorders. The term of psychosomatic has been avoided as it has undesirable connotations. It can be used by people in a rather dismissive way (e.g., somebody's physical problems may be dismissed because "they are all psychosomatic"). Hence, psychosomatic illnesses are sometimes thought of as not 'real' illnesses and therefore not worth of medical attention.

Psychophysiological diseases are physical disorders in which psychological factors play a major causative role. The six classic psychophysiological disorders include peptic ulcers, anorexia nervosa, migraine and tension headaches, hypertension, coronary heart diseases, and bronchial asthma. Several emotional patterns were found to correlate with each of these disorders as follows:

1. The ulcer itself results from an excessive flow of the stomach's acid-containing digestive juices, which eat away the lining of the stomach, leaving a crater like wound. It is now recognized that worry, repressed anger, resentment, and too much anxiety may contribute in stimulating acids beyond the need for digestion, therefore, causing ulcer. Weiner et. al. (1957) has documented evidence indicating that conflicts centering on dependency needs are especially likely to be found in individuals who develop ulcers. Moreover, a number of investigations have found that as a group, persons with chronic ulcer disease appear to have lead a more stressful emotional life when compared with a control group (Schneiderman, et al, 1981).

2. Anorexia nervosa is a disorder in which the individual, by refusing food or vomiting shortly after eating, loses so much weight that he or she risks dying from starvation. Anorexia often begins when life changes are requiring new or unfamiliar skills concerning which the person feels inadequate, such as going to college, or getting married. The characteristic conflict activated by such events seems to be on the one hand, a desire to achieve autonomy and, on the other hand, a pronounced fear of attaining the status of an independent adult (Palazzoli, 1978).

3. Although the majority of headaches, can be caused by several factors, they seem to be related to emotional factors. Coleman (1984) indicated that about 9 out of 10 headaches are emotionally determined. Migraine is basic and is described as an intense and painful headache that recurs periodically, and usually involves one part of the head. Headaches including migraine usually appear during adolescence and recur periodically during periods of stress. The presumed psychological predisposition for headaches are less clear than in peptic ulcer. However the typical headache-prone person strives to feel in control of events imprinting on him or her. Such individuals are usually described as highly organized and perfectionists (Williams, 1977). Research show that tension headaches might be more indicative of emotional problems than migraine headaches.

4. Hypertension or high blood pressure is the primary cause of many deaths every day in the world. In some cases a physical cause of hypertension can be identified, but the cause of this condition is related to many factors that are thought to be important in its pathogenesis, including genetic, environmental, and psychological ones. Obvious preexisting organic factors can be ruled out in 90 to 95 percent of hypertension (Byassee, 1977); thus essential hypertension denote an absence of known physical factors. The research literature on both humans and animals show that

chronic hypertension may be triggered by emotional stress (Schneiderman et al, 1981). For example, a highly stressful job markedly increases the risk of hypertension. The psychological interpretation of hypertension is that affected persons suffer from suppressed rage. McClelland (1979) proposes the view that the individual is driven not so much by rage as by power motives and the need to inhibit their expression. Unexpressed anger is then a frequent component. It is not entirely clear why some persons exposed to emotional stress develop hypertension while others do not. Schneiderman and his colleagues (1981) propose 3 major interacting factors accounting for this problem: (1) hereditary predispositions to hypertension, including a high level of sympathetic responsiveness, (2) environmental factors such as work stress and/or any other psychological stressors. Large intake of sodium can be included in this group of factors; and (3) poor coping mechanisms with stress including inability to relax or to exercise.

5. Coronary heart diseases and sudden cardiac death correlate highly with Type A personality (Rosenman and Friedman ,1 974). Type A person has been described in terms of an eagerness to compete, frequently engages with self-imposed deadlines, intense need for recognition,

mental and physical alertness, and strong drive toward self-selected but poorly defined goals. Type B shows a relative absence of these characteristics. An analysis of data collected from 3,000 working men for 8.5 years, found that Type A subjects had an estimated risk that was 2.37 times the risk of Type B subjects (Schneiderman et al, 1981).

The exact nature of how Type A personality leads to coronary heart disease remains to be answered. However, it is conceivable that some of the stressful life events including work stress may be instrumental in bringing out the Type A pattern, and in causing physiological responses (e.g., changes in blood lipid level, coronary artery spasm) that are injurious to the coronary vessels.

6. Bronchial Asthma is another condition that is associated with emotional reactions. The fundamental characteristic in this condition is a hyper reactivity of the bronchi to a variety of physical, chemical, and psychological stimuli. On exposure to these stimuli, there is a widespread and intermittent narrowing of the air passages of the lungs, resulting in an obstruction to air flow, particularly during expiration. Persons who have bronchial asthma complain of episodes of wheezing, cough, and dyspnea. Between episodes the asthmatic individual may have no complaints.

On the basis of empirical observations, it is recognized for many years, that psychological factors can aggravate bronchial asthma. In attempting to establish a link between psychological factors and asthma, modern clinical investigations focused attention on emotional states in which asthma tends to occur. Panic, fear, anger, and other states of emotional turmoil are known to be associated with the occurrence of asthma attacks. Well-controlled experimental investigations have shown that asthma-like respiratory symptoms can be induced by stressful events such as watching a stressful films and criticism.

The interaction that occurs between an asthmatic child and his parents may have adverse effects on the child's asthmatic condition. Some studies have shown that the parents of asthmatic children score higher on measures of neuroticism than those of non asthmatic children. However, the stress in the family-child relationship may be a consequence of the problems created by the child's asthma, rather than a cause of the illness, indicating that the cause-effect relationship between asthma and family relationship is less clearer than the role of emotional states during which asthmatic attacks tend to occur.

7. Cancer. Cancer is really a multitude of more than 100 diseases which are characterized by malfunctioning DNA, causing rapid cell growth and proliferation (Kaplan,

Sallis, & Patterson, 1993). These growths may displace normal organs and deprive the body of vital resources. Work with animals suggests that experiencing uncontrollable stressors is associated with increased risk of cancer (Ibid). Visintimar, Seligman, & Vopicili (1983) implanted rats with cancer cells. Half the rats were exposed to inescapable shock and half remained in their cage. More rats who had been exposed to the shock grew tumors compared with those who had not. Among humans, Kaplan, Sallis, & Patterson (1993, p. 117) reported that the loss of loved ones is related to higher incidence of cancer.There is, also, substantial evidence supporting the notion that cancer growth may be significantly augmented by stress and sense of helplessness. Further, there is evidence that the availability of escapable means from social stresses neutralizes the stressors' influence on tumor growth and neoplastic development (Genest & Genest, 1987).

SUMMARY

Emotions may be better defined as a complex correlated reactions to external stimuli such as threat, or loss.

Three major components can be identified in any emotional experience: 1. subjective feelings or internal cognition, 2. physiological changes, and 3. emotional body reactions.

The emotional response is mediated largely by the autonomic nervous system (ANS) and the endocrine system. The role of the sympathetic and the parasympathetic nervous system in emotions has been outlined.

Emotional stress is defined as anything that causes intense and prolonged emotion. Hans Selye has demonstrated that emotional stress effects health. His studies proved that prolonged exposure to stress may lead to a failing immune system, that in return may lead to hardship, and some serious physical problems including cancer.

Life events can also lead to emotional stress. Holmes and Rahe, and other researchers in recent years have studied the specific types of illness that are associated with stressful life events. Simple and more serious physical illnesses were found to relate to the presence of life stresses.

This has lead to the conclusion that mental, emotional, and physical processes are implicated in some way with good or bad health.

The relationship between psychological factors and health has been well documented, particularly in the case of psychophysiological disorders (also called psychosomatic disorders).

Psychophysiological disorders are physical diseases in which psychological factors play a major causative role. Several emotional patterns were found to correlate with such disorders including peptic ulcer, anorexia nervosa, headaches, hypertension, coronary heart diseases, and bronchial asthma.

CHAPTER FOUR

MOTIVATIONAL BASIS

CHAPTER FOUR

MOTIVATIONAL BASIS

Our behavior is directed toward different goals. Some goals are followed more vigorously than others. The same goal may be pursued for different reasons. Choosing medicine as a profession, for example, requires motivation, a long process of initiating, sustaining, and directing activities toward achieving this goal. The medical practice as a goal may be pursued for different reasons for different individuals. It can be a way to make fast money, prestige, or humanitarian commitments.

The Concept of Motivation:

This concept is usually used to explain the causes of animal and human behavior. The study of motivation accounts for two aspects in the study of human behavior; the direction and the activation. The study of direction requires studying the needs and strivings that directs people to certain types of behavior. In other words, the study of direction requires studying the motivating forces that make an individual choose to study, for example, medicine and not engineering or fictional writing.

Activation can vary in degree from very low to very high. At any moment a person's level of activation is influenced by a wide range of individual and situational

factors. It is effected by the way one perceives the situation and evaluates its potential satisfaction and frustrations: it is affected by many inner conditions including biological drives, emotions, and drugs; it is effected by sudden loud noises and strange or novel stimuli; and it is affected by fatigue, disease and pain.

Efficient task performance (studying for a test, for example) relates curvilinearly to activation. In other words efficient task performance requires a moderate level of activation. Too high degree of activation result in poor and impaired performance, while too low level may not be enough to energize the person to perform well. Moderate levels of activation create moderate level of tensions which can lead to more efficient task performance.

TYPES OF MOTIVATION

Motives are usually divided into three major categories: primary, stimulus motives, and learned or secondary motives.

PRIMARY MOTIVES:

Primary motives are based on biological needs that must be met for survival. The common primary motives are: hunger, thirst, sex, pain avoidance, and needs for air, sleep, elimination of wastes, and regulation of body temperature. The primary motives are unlearned.

For most of us, satisfying biological needs is so habitual to the tendency to overlook how much of our behavior they actually direct. But imagine a famine, firewreck, neardrowning, you can judge how their powerful grip on behavior becomes. Indeed, Abraham Maslow has pointed out, biological needs tend to be prepotent and dominant over psychological needs. If your survival is threatened by starvation, lack of water, or a need for oxygen, you will probably set aside needs for prestige, achievement, etc. The biological drives are essential because they maintain homeostasis or bodily equilibrium (Cannon, 1932).

Homeostasis:

A homeostasis mechanism is like a thermostat. Our bodies contain complex homeostatic mechanisms that serve to maintain proper levels of these essentials. These homeostatic mechanisms must keep steady states of each of these vital supplies, because the body cannot handle either too much or too little of them.

Basic biological motives such as hunger, sex, and thirst appear to operate according to homeostatic principles. If we need food, our internal system "turn on" food-seeking behavior. When enough nourishment has been obtained, the "system "turns off" food seeking behavior. different homeostatic systems probably regulate the other biological motives.

STIMULUS MOTIVES:

Also appear to be innate, but they are not necessary for mere survival of the organism. Their purpose is to provide useful information about the environment and stimulation of the nervous system. The stimulus motives include activity, curiosity, exploration, and physical contact.

Stimulus Motives and Homeostasis:

Are stimulus motives homeostatic? Some psychologists argue that they are not. however, by relating drives for stimulation and curiosity to the concept of homeostasis, we get a model of motivation that is very useful for understanding many human activities. This position, called the arousal theory of motivation, assumes that there is an ideal level of arousal for various activities and that individuals behave in ways that keep arousal near the ideal level (Hebb, 1966).

LEARNED-SECONDARY MOTIVES:

Account for the great diversity of human activities. They are divided into two categories: social and psychological. The most important secondary motives are related to acquired needs for affiliation (the need to be with others), approval, status, power, security, and achievement. The important motives of fear and aggression also appear to be subject to learning.

The secondary motives are complex human motives. By that we mean they are much more heavily determined by learning and experience, and are aroused and satisfied more in terms of psychological and social events than are the biological drives. Failure to satisfy these needs does not lead to death, but frustration and failure in these areas can lead to severe disturbances. Examples of such motives are :

Achievement Motive:

The need to achieve may be defined as the need to meet or exceed standards of excellence. People with a strong achievement motive tend to work hard at the things they approach and to make the most of their talents. Compared to low achievers, they do better than the average at many kinds of mathematical and verbal tasks. They make better grades in high school and in college. In their life work they are more likely to rise above their family origins and move upward in society (Kagan, Havemann, & Segal, 1984). It was found that this type of motivation is extremely powerful in western societies. People high in achievement motivation tend to exert more effort and to do better than low achievement. Although some people feel achievement motivation may have some biological determination, it is suggested that it reflects early independence training. Children displaying

high need for achievement as adults were often required to be independent at an early age.

Affiliation Motive:

The need to affiliate is represented by strong inclinations to be with others. This motive makes us first seek close attachments with parents and later establish friendly and marital relationships with others. The strength of this motive, however, is thought to be highly experienced when we are confronted with unpleasant emotions. Schachter (1959) found that students tended to prefer company after having been made anxious. Also, there is evidence that the need to affiliate can affect performance significantly. Mckeachie et al (1966) compared performance of high and low affiliation subjects in two classrooms. One class radiated a warm social atmosphere. There were many personal contacts involving both teachers and the students, and the general mood of the class was friendly and sociable. In the second class, much less contact was created. Students scoring high on affiliation did better in the warm atmosphere than in the cool classroom, while the reverse was true for students scoring low on affiliation. Although some researchers feel that this need has a genetic factor, others believe that this tendency is learned in the early years of life.

Power Motive:

The power need may be very well defined as a need for controlling others and exert influence. Those who have a strong power motive tend to be in a position of control, to give orders, to command respect and obedience. Unlike the high achievers, they have less to do with good performance than with being controlling others. This need is stronger in some people than in others. Some of us are very concerned about the direction that our lives take, and therefore, they have need to control our environment. If people high on this need experience a sense of control then they tend to be happy, healthy, and content. But if their need to control is blocked, then they may suffer depression and a sense of helplessness.

MASLOW'S NEED HIERARCHY

Abraham Maslow (1971) has proposed an alternative way of classifying motivation. According to Maslow, motives are arranged in a hierarchy. Basic biological needs are arranged at the bottom of this hierarchy, while more complicated psychological motives are toward the top. The motives at one level must be relatively satisfied before the motives at the next level can direct and control behavior. Each time one level is satisfied, the individual moves to the next higher level. For example, once some sense of love and belonging is

established, we are free to strive for self-esteem, respect, and success.

The final phase, that of self actualization, is apparently reached by very few of us. Most of us are stalled along the way. According to Maslow, the self actualized individual can accept himself, can accept others as they are. and can accept reality. The self actualized person is in tune with the meaning and mystery of life.

The self-actualized life may be beyond our reach, but fortunately we can reach this final level for brief periods. According to Maslow, peak experience, where a sense of self actualization is attained momentarily, are within reach of many of us.

The order of the needs is somewhat arbitrary. For example, it may make more sense to you to put belongingness above esteem. The exact nature and order of the steps is not overly important.

The vagaries of life as well as recurring needs may force us back down the pyramid.

Although lower needs must be satisfied before higher needs can be achieved, there is some flexibility here. Lower needs don't have to be totally fulfilled before we move upward. We can still can work on our writing when we are hungry. We can pursue self-esteem when we are thirsty. In other words, lower needs must be relatively satisfied; they

The Hierarchy of Motives

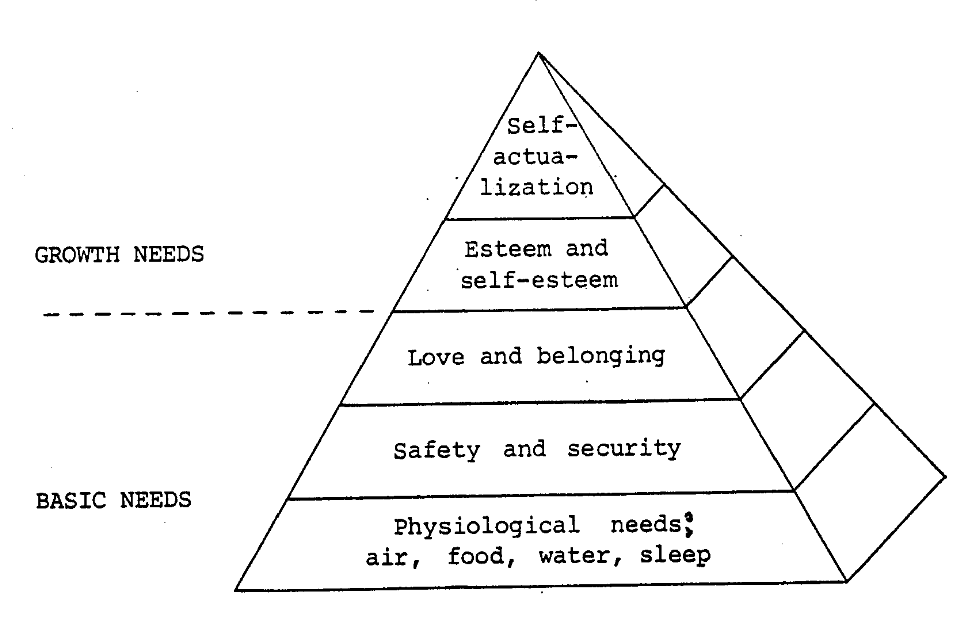


Fig. According to Maslow, motives are arranged in hierarchy. Basic biological needs are at the bottom of this hierarchy, while more complicated psychological needs are toward the top.

Abraham Maslow's Whole Characteristics of Self-Actualizing People

They have more efficient perceptions of reality and are more comfortable with it.
They accept themselves and their own natures almost without thinking about it.
Their behavior is marked by simplicity and naturalness and by lack of artificiality or straining for effect.
They focus on problems outside themselves; they are concerned with basic issues and eternal questions.
They like privacy and tend to be detached.
They have relative independence of their physical and social environments; they rely on their own development and continued growth.
They do not take blessings for granted, but appreciate again and again the basic pleasures of life.
They experience limitless horizons and the intensification of any unself-conscious experience often of a mystical type.
They have a deep feeling of kinship with others.
They develop deep ties with a few other self-actualizing individuals.
They are democratic in a deep sense; although not indiscriminate, they are not really aware of differences.
They are strongly ethical, with definite moral standards, though their attitudes are conventional; they relate to ends rather than means.
Their humor is real and related to philosophy, not hostility; they are spontaneous less often than others, and tend to be more serious and thoughtful.
They are original and inventive, less constricted and fresher than others.
While they tend toward the conventional and exist well within the culture, they live by the laws of their own characters rather than those of society.
They experience imperfections and have ordinary feelings, like others.

Table _. Characteristics of self-actualizing people as reported by Maslow. Source: Maslow, A. (1970). Motivation and personality, 2nd Ed. New York, N. Y.: Harper & Row.

must not be so strong and pressing that they block our higher efforts.

MOTIVATIONAL FACTORS IN HEALTH AND ILLNESS

McClelland and his associates investigated the role of motivational factors in several health related areas (Fisher, 1988;). For example, they carried out a series of studies on the role of motives on insulin dependent diabetes, usually referred to as Type 1 diabetes. The diabetics as compared to non diabetic controls were characterized by a high affiliation need and low power motivation, indicating that high affiliation accompanied by easy going and less assertive motivational characteristics are positively linked to Type 1 diabetes. Moreover, Type 1 diabetics with this motivational sets were more at risk for developing poor control of sugar in their blood. It is argued that because of their high affiliation needs, Type 1 diabetics tend more to break dietary restrictions, particularly if they are under affiliation pressure. That is, they eat more and ignore diet restrictions if they are with others, indicating that affiliative arousal encourages them to ignore dietary control.

A second illustration of how implicit motivational syndromes can play a key factor in health comes from David McClelland's research on comparing power motive with

affiliation motive and illness.. Much of his work shows that people who have a strong need for affiliation have a health advantage over those with high power motivation, whose high need for power is frustrated. In addition people with high power motivation have a depressed natural killer cell function, and also appear to suffer more respiratory infection and hypertension (Fisher, 1988).

High implicit power motivation is associated with greater severity of illness primarily when life stresses are also high. That is, illness increases only if such motivation is frustrated or stressed. When power motivation is not frustrated, it leads to more health. In fact, recent treatment studies have shown that patients improve in various measures of health following increasing their sense of power and control over their lives. Conversely, very low power motivation may indicate a sense of helplessness which is associated with more illness.

Motive patterns appear not just responses to better or poorer health, but it was found that they play a causal role in health outcomes because they predict illness over a 10-year period and because changes in them produced by therapy precede health improvements (McClelland, 1989).

CHAPTER FIVE

THINKING, REASONING, AND CREATIVITY

A. THINKING

We cannot learn all the answers to all problems and questions just by acting and observing others. We must perceive, analyze, and interpret situations. By using language, we create ideas, determine meanings, and process relationships. Managing such process by the brain to solve problems and create new meanings is called thinking. Thinking, then, can be defined as the act whereby already acquired content is manipulated to solve problems and meet new demands (Dempsey & Zimbardo, 1978; Forgus, 1966; Vingoe, 1981). Thinking then can take two forms; reasoning and creativity. Before we describe these two forms, we need to explain levels of thinking.

Levels of Thinking:

According to Forgus the act of thinking takes place on a broad continuum. Information is processed via three major levels; images, concepts, and symbols.

Imagery:

Refers to an experience which revives a previous perceptual experience. when you go to the library, and see a

book on the shelf, this book forms a mental picture (visual image) and becomes part of your thinking. A song you hear on the radio combines with other auditory images to become part of your attention is another example of imagery thinking. Imagery takes several types including ordinary waking images, fantasies, dreams, and those occur between wakefulness and sleep such as hallucinations. Eidetic images is another type of imagery thinking; people with eidetic imagery can keep strong and vivid mental pictures from what they see or hear. Such people have a photographic memory and can strongly "file" images and use them in their thinking later on. We don't do much of thinking about images, however. It is when we combine similar images into a single concept or category that we do much of our thinking.

Concept Formation:

Involves objects, ideas, people, or events. Most words stand for a concept. Food means a family of objects that can be eaten such as bread, fruit, meat, etc. The function of a concept is to relate present to previous experience, so that new situations and events may be dealt with without further learning.

For some people, concept formation is an easy process. They can abstract and sort problems faster than others. Heidbreder (1946) proved that people can be divided accordingly to abstract versus concrete thinkers. Goldstein

and Scheerer (1941) found that brain-damaged subjects show a greater deficit in dealing with abstract than concrete concepts. This result hold validity in a study of brain damaged versus functional psychotics in Egypt (Fayeck, 1969).

Symbolic Thinking:

Stands for more than a physical images. Words such as freedom, justice, peace are symbols that evoke different kinds of feelings and thoughts.

We don't conceptualize symbols the same way. To a physician a human body is seen as an object of manipulation according to being healthy or unhealthy, for an artist body creates a variety of feelings related to natural harmony and beauty. Symbols and words are generally used alternately and represent tools for thinking.

B. REASONING

Reasoning is thinking with a purpose; most of the time it is directed toward a specific goal or task. The focus of reasoning is problem solving.

Psychologists delineate three major types of reasoning; deductive, inductive, and evaluative.

In deductive reasoning, the person proceeds from the general to the specific. You have a general concept (premise) in mind based on which you make facts or

conclusions that fit into your logical assumptions. In inductive thinking, to the contrary, the thinker proceeds from known facts to generalizations based on such available facts. Induction forms the basis for much scientific and medical research. In evaluative reasoning, we face the problem and we must evaluate all the possible solutions and choose among them. This type of reasoning, requires using your judgment or some evaluative schemas according which you decide about the suitability, goodness, or effectiveness of an idea. Our choice of certain solutions determines your personality style. For example, you become "unrealistic" if you tend to choose non practical solutions; and you may be considered "daydreamer" or "idealistic" if you think of fantasy and unavailable solutions. In schizophrenia (a mental disorder) it was demonstrated that schizophrenics are susceptible to certain problems in their reasoning and evaluative thinking. Psychologists (e.g. Hawks and marshall, 1971) demonstrated that schizophrenics faced with a conceptual task requiring sorting cards to different categories, tended to be susceptible to distraction leading them to irrelevant types of reasoning.

C. CREATIVITY

CREATIVITY DEFINED:

The word creativity, as used here, denotes to the ability to produce new, original, and workable ideas. One of the most used definitions of creativity centers on the ability to diverge from the traditional and the expected cognition to produce something new.

Although creativity is connected to famous inventor names, it exists in differing degrees. All of us, indeed, do think creatively at one time or another. The difference between us and those famous thinkers and scientists lies in the kind of things we are creative about. We are creative in things that are not considered of great world-wide impact.

To study creativity, psychologists have often used open-ended questions that measure divergent thinking. Divergent thinking is a cognitive process that requires people to generate many mdifferent solutions to a problem.

In a typical test of creativity, subjects might be asked to examine a group of line drawings and think of all the objectseach drawing can represent. Or, subjects might be told to suggest names for stories, such as the one in the example shown in Figure 8 (Berger & Guilford, 1969).

√

PLOT TITLES

Form B

RAYMOND M. BERGER and J.P. GUILFORD

NAME ______________________ SEX: M ___ F ___ SCORES: I ___ II ___

GROUP ______________________ DATE ______ Total ______

In this test, your task is to suggest names for stories that you will read. Read this story:

Mr. John Fox had a vineyard of fine grapes but animals that lived nearby came to help themselves. John needed all the grapes to sell, so he built a high fence around his vineyard. Next year when the grapes were ripe, Mr. Reynard, the fox, came around expecting his usual feast. He jumped and he jumped but he could not scale the fence. Turning away in retreat he was heard to mutter, "I don't want any of those grapes anyway; they are much too sour."

For this little story you might write titles like some of these:

The fox and the grapes
The story of a fox
The fenced-out fox
The farmer built a fence
One fox outfoxed another
A fence for Mr. Reynard
The fox's grapes turned sour

You should notice that each title is about the story or about some important part of it. This should be true of the titles that you write.

Some of the titles you may think are a bit funny or clever. You should try to give a few clever titles, but do not sit and wait for such titles to come. Write down every title you think of as it comes, for every one will count toward your score if it fits the story. Keep writing, if you can, to make full use of the time you have.

There are two parts to this test. You will have 3 minutes for each part. If there are questions, ask them now.

STOP HERE. WAIT FOR FURTHER INSTRUCTIONS.

Fig. In a typical test of creativity, subject might be told to suggest names of stories such as the one above. Source: Berger, M., & Guilford, J. P. (1969). Plot Titles. Beverly Hills, Calif.: Sheridan Psychological Services, Inc.

CREATIVITY PROCESS:

Psychologists delineated several stages in the creative process, including; 1. preparation: increasing familiarity with situation and material; 2. incubation: unstructured assimilation of fragments and elements of task; 3. illumination: goal direction established; and 4. verification: achieving the final result via correction and modification. There is evidence that these stages can be observed in artistic as well as scientific creativity (Patrick, 1973; McKellar, 1957; Vingoe, 1981).

CREATIVE INDIVIDUALS:

Research indicate that highly creative individuals are distinguished with certain personality traits different than those associated with lower degrees of creativity (Barron, 1965; Ibrahim, 1976). Creative people are reported to be verbally fluent, have a great deal of curiosity, flexible thinkers, independent, unconventional, and willing to take calculated risks. This personality pattern may indicate that creativity is not something we are born with. It grows out of personality attributes that can be enhanced to some degree (Dempsey & Zimbardo, 1978).

CREATIVITY AND HEALTH:

There is a popular myth that creativity is associated with psychopathology; the common stereotype is that one must

be creative and suffer. Surprisingly, current research shows that the ability to be creative is actually found to be more prevalent and more effectively employed among men and women who possess a high degree of personality integration and stability (Ibrahim, 1978; Schubert, 1975). Barron (1963) and MacKinnon (1965) have done several research indicating that highly creative people are in fact more able to cope with stress, independent, could communicate ideas easily, and nonconformists. Such traits are considered conducive to mental health and coping with stress.

The fact that some highly creative people are sometimes more prone to anxiety, fear, and mental illness shows that they are creative "in spite of" their psychopathology and not "because of" it. Arieti (1976), on the other hand, cited evidence indicating that although creative individuals may be of abnormal temperament, their pathological traits hinder the flow of their creativity. Thus creative individuals with, for example, insane temperaments produce their best work in the healthiest periods of their life (pp. 356-358).

Mental health therapists, therefore, have developed therapy techniques, the goal of which is to strengthen the personality of the patient and to help him deal creatively with his problems. The message such mental health therapists are delivering is that "there are better solutions and unthought of options to dilemmas which the patient

experiences as unsolvable, and that there are concrete ways to enhance the patient's ability to detect and implement such options (Schubert, 1975, p. 23).

CHAPTER FIVE

THINKING, REASONING, AND CREATIVITY

CHAPTER SIX

MEMORY AND FORGETTING

Memory refers to the process through which we remember something from the past. When we remember an event it appears to us as if it was really present in the brain in a picture, sound, or any other perceptual form.

SHORT-TERM AND LONG-TERM MEMORIES:

Psychologists distinguish between two kinds of memory based on its relationship with the past events: short-term and long term memory. Short term memory refers to remembering something happened in the recent future, i.e. brand new memory (examples: remembering something just took place like what you ate for breakfast, or the main ideas in a paragraph you just read.) Long-term memory is more permanent and relates to recalling events from the distant past.

Short-term memory is a temporary process used to hold the information and the occurring events until we decide on its merits (Kellog, 1980). Vingoe (1981) noticed that in order for material to pass from short-term to long-term memory it must be practiced or rehearsed.

A major psychological trauma called amnesia (defined as blocked memory) can cause people recall events from the distant past, but cannot remember anything recent. Amnesia

can be caused by electric shock, severe blow to the head, or any psychological trauma that causes some major physical changes (Graf, Squire, & Mandler, 1984; McMahon & McMahon, 1984).

Other researchers (Tallard, 1971; Vingoe, 1981) noted that people who have been assessed as mentally retarded typically have difficulty in short-term tasks, probably due to a failure to process and organize information. This is also common in old ages.

On the other hand, there are some persons who have special skills in short-term memory. Psychologists (Anastasi & Levee, 1959) report the case of a man who could repeat two and a half pages of print immediately after reading them once. The unique aspect about this case and similar cases is that most of these people were found to have very low I.Q. Therefore they are called by researchers idiot savants, a term meaning idiots with great learning abilities.

MEASURING MEMORY

MEMORY SCALES:

There are number of memory scales available for measuring short and long-term memory. An example of a short-term memory task would be the commonly used 'digit-span' test included on the famous Wechsler Adult Intelligence Scale (WAIS) and the Wechsler Memory Scale

(WMS) (Wechsler & Stone, 1945). The 'digit-span' test requires the individual to repeat a series of numbers which are read to him at one-second interval. One series is required to be repeated forwards, while another series is required to be repeated backwards. The William Delayed Memory scale (Williams, 1968) involves long-term memory task, in that the individual is not required to recall a series of meaningful pictures until about 10 minutes have elapsed.

TECHNIQUES OF MEMORY MEASUREMENT:

Generally, three techniques are used in the study of memory: retention, recognitionn, and recall.

Retention:

The subject looks at a list of nonsense syllables, digits, or words, and is then shown each of them one at a time. As each item appears, the subject is asked to anticipate the following item in the series. The purpose here is to measure the retention capability of the individual according to the types of material presented and the nature and duration of various types of interference.



Fig. Memory is measurable, and well designed memory tests have been made available by psychologists.

Recognition:

Here the subject is presented by a picture of an object, face, or symbol, and asked whether it is one of a set learned earlier or is a new one.

Recall:

In recall, the individual is asked to recall all the items that can be remembered from a previously learned material.

WHY FORGETTING?

We cannot talk about memory without talking about forgetting. We do not remember everything, and in some amnesic cases there are times when it seems we can't remember anything. Why?

DECAY THEORY:

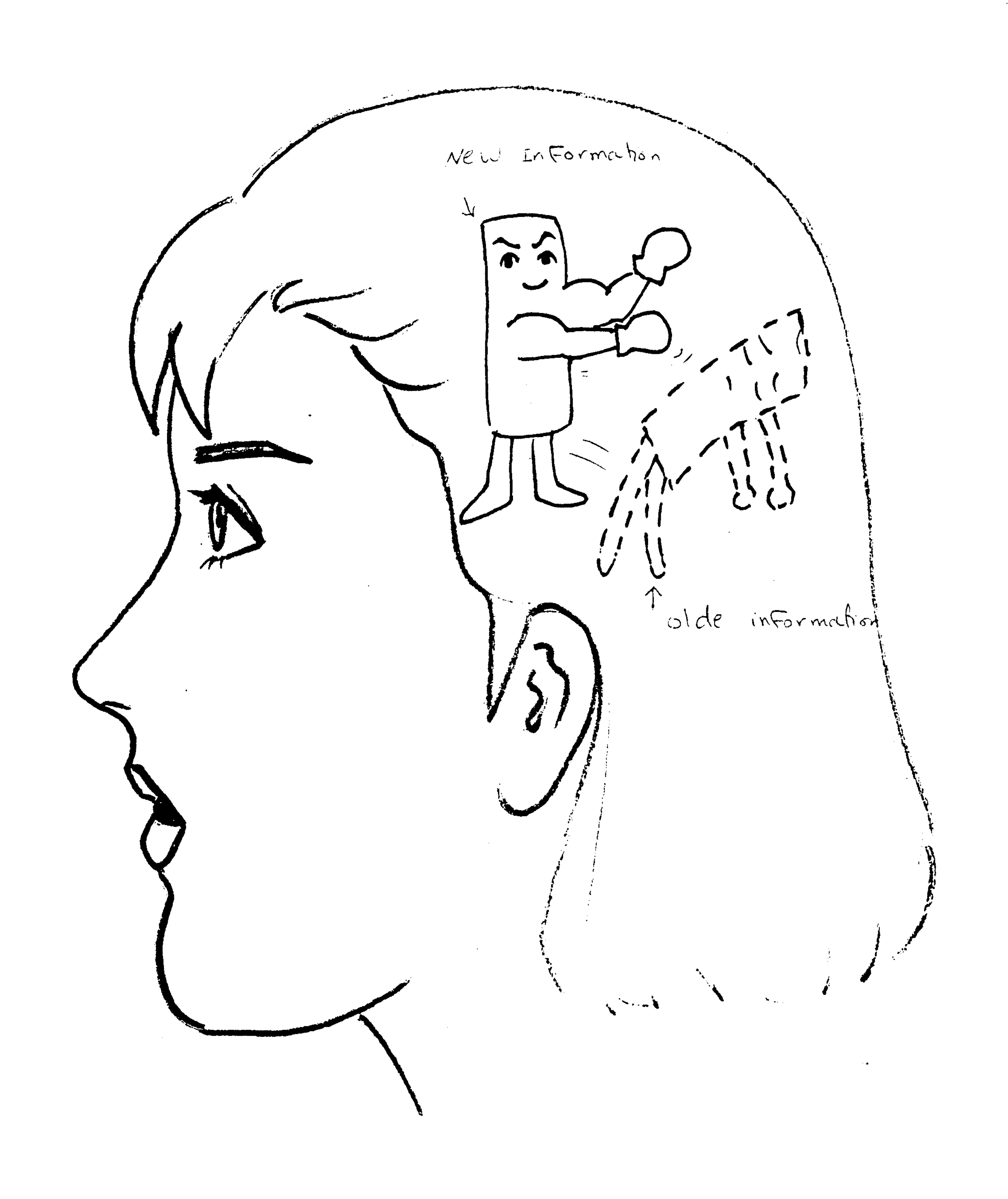
One major theory attempted to account for forgetting is called **decay theory**;the learned material fade away from disuse. Recent research, however, gives little support for this theory. The lapse of time in itself and by itself is not enough to explain the process of forgetting. Hence, other theories have been established.

INTERFERENCE THEORY:

As opposed to the view that time itself is the major factor in forgetting, psychologists developed another view called the **interference theory**. The interference theory argues that it is what occurs during the time period lapsing between occurring events and their recalling that is crucial in remembering. If there were nothing to interfere with our knowledge, we would never forget anything. There are two types of interference: **retroactive inhibition** and **proactive inhibition**. In the retroactive inhibition new learned material interferes with the old material causing inhibiting this old information from remembering. In this type of inhibition the new material overpowers older information and becomes stronger and more dominant than old ones. Proactive inhibition is when older information inhibits the retention of new material. If we are so involved in our earlier learned material that we keep thinking about it we might forget the new information if we were able to learn it at all.

MOTIVATIONAL FORGETTING:

A very different approach was taken by the known Austrian psychoanalyst Sigmund Freud, who developed motivational theories to account for forgetting. According to Freud forgetting may be intentional. If certain



ig. In the retroactive inhibition, new learned material interferes with the old material causing inhibition of the old information from being remembered.

experiences are too painful or unpleasant, they get pushed into the repressed in the unconscious mind. Freud argues that forgetting does not mean that bad experiences are fully gone, because they may persist at an unconscious level producing emotional conflicts for years. Some confirmation has been given to Freud's view by recent research showing that people who are hypnotized are able to recall long forgotten events in exact detail. Additional research (Kohlers, 1983; McMahon & McMahon, 1987) showed that some people who commit violent crimes such as murder have no recollection of the act except when a hypnotist deliberately recreates the situation in the criminal's mind.

PHYSIOLOGICAL THEORIES:

Recently, psychologists developed the synaptic theory which suggests that patterns of learning are established in the brain by connecting different synapses and developing preferred routes for electrical impulses and memories. The synapse is the junction between two nerve cells, or neurons. According to this theory, an electrical impulse travels down one neuron to the synaptic junction causing the electrical information in that neuron moving over the synapse to the next neuron. This transmission is aided by chemical neurotransmitters between the two neurons that cause the next neuron in line to fire.

(Kandel, 1984). Synaptic theory suggests that through repetition of a sequence or pattern of synapses certain memories tend to be easier to fire the more often we use them. There is evidence that synapses grow and change as the result of overlearning.

The exact location in the brain for storage of memories is unknown. However, some recent studies suggest memories are not stored as complete units. Instead, a given memory results from a combination of a number of different memories. Recalling something will trigger other associated items stored in other places (Broadbent, 1984). Bits of information (visual, auditory, and verbal) seem to be located in various places and then brought together in association areas, such as the frontal lobe (located behind the forehead). These cells are assumed to serve the function of integrating bits of material until a complete memory is made.

REMEMBERING SOMETHING BETTER THAN OTHERS:

Many factors can effect memory and some of these are of direct relevance in medicine. Such factors are summarized by Weinman (1981) as follows:

Level of Processing:

If people are given more time to remember a list of words, they will become able to generate some strategies which facilitate memory.

Individual Differences:

Some people have ability to remember more than others. Research show that some few individuals excel the majority in their sometime limitless capacity for long term memory. Studies of these individuals seem to indicate that they are particularly adept at processing and organizing information so that it can be easily retrieved.

Ageing:

Ageing produces decrements in memory after about the age of 50. However, these are not absolute since there is a great range in memory capacity amongst the aged.

Treatment Effects:

Medications effecting the nervous system can also have a direct or indirect effect on memory functions. For example, it has been claimed that medications such as L-dopa and Piracetam have specific effects on cognitive functions including memory. Also, electroconvulsive therapy usually has a detrimental effect on memory. Also it has been found that anesthetic agents can disrupt memory for some hours.

DISORDERS OF MEMORY

As with many other functions, there has been considerable confirmation that memory can deteriorate as a result of pathology. For example, a common deficit referred to as amnesic aphasia, distinguished by the inability to recall specific names is sometimes associated with lesions of the posterior part of the temporal lobe (Gatz, 1973). A further indication of the importance of the temporal lobes in memory function is that removal of both lobes in humans permanently abolishes memory of past experience (Gatz, 1973). Memory impairment, particularly of short term storage, is also seen in patients with generalized organic dementia (dementia is defined as a noteworthy deterioration in intellectual functioning occurring after the completion of brain maturation due, but not always, to ageing), and is usually the first of the cognitive functions to decline. In older groups, Talland (1971) noted that retention seemed to be affected more than the ability to perform either recall or recognition tasks. Eysenck (1977) argues that deep and elaborate encoding (registration) occurs decreasingly among older people, and that this is the prime cause of age-related deficits in long-term memory. The reasons for this deficit are summarized by Weinman (1981) as: reduced motivation, a negative attitude to novelty, a reduced

general state of arousal or its opposite, heightened arousal, with a consequent enhancement of interference from the autonomic system (Weinman, 1981, p. 57).

Alcoholism, specially in older alcoholics and after many years of excessive drinking can lead to Korsakoff's syndrome which is related to memory impairment. The Korsakoff syndrome was first described by the Russian Psychiatrist Korsakoff in 1887 and is characterized by outstanding memory defect particularly with regard to recent events. Individuals may not recognize pictures, faces, rooms and other objects that they have just seen.

Other emotional problems can lead to temporary or permanent loss of memory. Anxiety, for example, disrupts short term-memory and a number of psychiatric patients have been described as showing 'hysterical amnesia;' a selective or sometimes total memory loss for past events which has a psychological rather than neurological basis (Baddeley, 1976; Weinman, 1981).

CHAPTER SEVEN

PERCEPTION: RECEIVING AND PROCESSING OF INFORMATION

Perception is a psychological function which enables the organism to receive and process information on the state of and changes in the environment. Perception plays a very important role in human learning because it is our link with the outside world. In the main, what we know about reality relies on the information we gather through our senses, and our perception of this reality. Additionally, our cognitive functions such as memory, learning, thinking, and reasoning all affect and interact with the information collected by means of sensation and perception.

SENSATION AND PERCEPTION:

For perception to occur, a meaningful sensory input labeled as sensation is required. Sensation is the process by which our sense organs, such as the eyes and ears, gather information about the environment. The process by which the brain selects, organizes and interprets these sensation is called perception.

Although perception and sensation are interacting functions, they differ. The primary function of sensation is to take in information, the primary function of perception is to help us make sense of that information. In other

words, perception allows us to impose a logic and order on the scattered thousands of sensations that flood our senses. Therefore, one of the basic characteristics of perception is to organize sensations. The process by which we do this is called attention.

FACTORS INFLUENCING OUR PERCEPTIONS

Which sensations we pay attention to depends upon many factors, some of which are explained in the following:

ORGANIZATION OF EXTERNAL STIMULI:

Probably, the first group of psychologists to systematically study the role of organization among external visual stimuli on perception were the Gestalt psychologists (Wertheimer, 1912). Gestalt is a German word that loosely translated to mean "whole" or "totality." The Gestalt psychologists felt that the perception of a total situation could not be interpreted as the simple summation of individual elements, but that is a perception of totalities. They proposed the idea that in most things, the whole is greater than the sum of its parts. Water, for example, is more than just hydrogen and oxygen.

There are various laws proposed by Gestalt psychologists to account for our visual perception.

Among these laws is similarity; This law states that where there are a number of elements present within a

(1) *similarly*

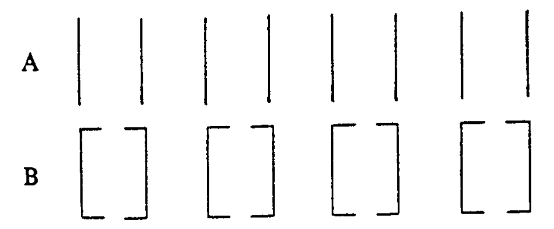
A	B
. o . o . o	. . . . . .
. o . o . o	o o o o o o
. o . o . o	. . . . . .
. o . o . o	o o o o o o
. o . o . o	. . . . . .
. o . o . o	o o o o o o

In A we perceive the dots and circles running vertically and in B horizontally. This is because stimuli which are similar to be grouped together.

(2) *proximity*. In the following series; OO O we see the near circles as a pair.

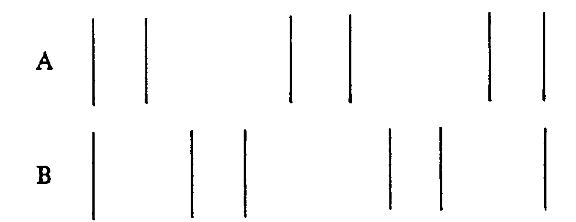
(3) *closure*

The following 8 lines (A) appear as separate units with little tendency to be grouped:



If a short line is added to the ends of the lines as in B, we now see them as 4 pairs of incomplete squares.

(4) *symmetry*



In A proximity makes us group the lines into pairs. In B the end lines are paired, not because of proximity but because of symmetry.

The mind likes to group stimuli into wholes—a tendency seen by the principle of closure.

Fig. Examples of laws of perception

perceptual field, those that are similar tend to be grouped together. For example, most people see Fig.   as divided into separate entities as crosses and black dots.

Another law is that of proximity which states that those elements of a perceptual field which are closest to each other will be perceived as gestalt or group (see Fig.9)

A third law proposed by the Gestalt psychologists is the principle of closure which states that we tend to perceive incomplete things as complete. In other words we tend to fill in the gaps in incomplete stimuli. Artists, for example, can sketch few lines to make them look like a well-known face, and a reader of a paragraph in a book does not need read each single letter to grasp the meanings involved (see Figures 9).

EXPECTATIONS AND VALUES:

Needs, values, and what we think or feel can determine what is perceived. Simply, psychological factors are influencing what at first seems only a physical one. The person who is anxious is likely to perceive events and situations as being more threatening than those who are less anxious.

EARLY EXPERIENCES:

Another factor that can influence our perception is early experience. Research shows that sensory experience in

pearly life, in both humans and animals, can alter the way an organism perceives the world. Thus a person who has a bad experience with the doctors may come to believe that doctors are aggressive, which in turn will influence the perception of the actual behavior of other doctors by interpreting them as aggressive or hostile.

Related to this factor is the so-called **pain perception**. Early socialization appears to play an important role in determining how we react and cope with pain. It was found, for example, that children respond to pain in a fashion similar to their parents reactions.

INDIVIDUAL DIFFERENCES:

Some changes in perception occur based on the individual differences in temperament, or motivation.

Laboratory studies on response to pain by using stimuli such as electric shocks, have confirmed the role of individual differences in perception. In higher anxious subject the experience of a standard pain stimulus was increased; and reduced in subjects with low anxious level.

PERCEPTUAL DISORDERS

Perceptual illusion is a good example for perceptual abnormalities. Simply, illusions can be defined as misperception, or inaccurate sensation. Perceptual illusions are very common and can make us reach wrong conclusions

about what we are seeing or hearing. In the following Fig. 10, for example, the top line appears distinctly shorter

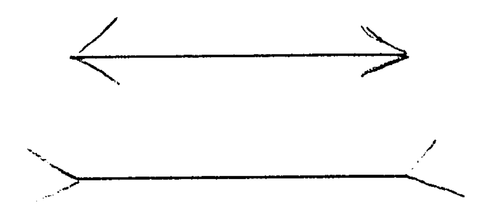


Fig. 10. Size illusion

than the bottom one. If you actually measure the lines you will find that they are equal. Part of the explanation of illusions is that they most likely to occur when the general level of sensory stimulation is reduced leading to an inadequate or vague sensory input. Thus, it is a common illusion in the dark, for example, to perceive a tree as a man.

Illusion can also occur when attention is not focused on the perceived object. Pathologically speaking, when there is a strong affective state, illusions tend to be more frequent. A person who is afraid in at dusk is more likely to misperceive the outline of a tree as that of an attacker. Illusions caused by strong emotions are very common in neurotic states and can be associated with psychotic perceptual disorders.

Perhaps the most startling perceptual disorders are hallucinations. A hallucination is unreal perception, or a percept experienced in the absence of an external stimulus. Normal people may experience hallucination, especially when tired, isolated for a long time, or during the transition between sleep and waking. Also, it can occur as the result of hallucogenic drugs. However, persistent and complex hallucinations, such as hearing voices or seeing creatures, can be damaging to our mental health because they distance us from our real world and can be over taxing for our emotional life. Thus, such hallucination are considered among the typical disorders of psychoses, particularly schizophrenia.

SECTION **THREE**

LEARNING AND SOCIAL FOUNDATIONS OF HUMAN BEHAVIOR

CHAPTER EIGHT

LEARNING AND CONDITIONING

CHAPTER EIGHT

LEARNING AND CONDITIONING

Learning, in its fundamental sense, is a change in behavior resulting from experience (Goldstein, 1984). Learning occurs when a person's response to a situation produces a new or changed kind of performance which then becomes part of his repertoire of behavior. Four major theories have been proposed to account for the relatively permanent changes in behavior that occur as a result of experience (Newman & Newman, 1984). These are: (1) classical or respondent conditioning, (2) instrumental conditioning or operant conditioning, (3) social learning, and (4) cognitive behaviorism.

RESPONDENT CONDITIONING

The Russian physiologist I.V. Pavlov was the first to discover the principle of respondent conditioning while experimenting with the digestive system of dogs. Pavlov observed that certain digestively neutral stimuli, such as the sound of experimental machinery and the sight of the experimental room, elicited preparatory eating behavior (saliva flow, chewing) similar to that elicited by the actual taste of food. Further experimentation showed that the sound of a tuning fork when consistently paired with

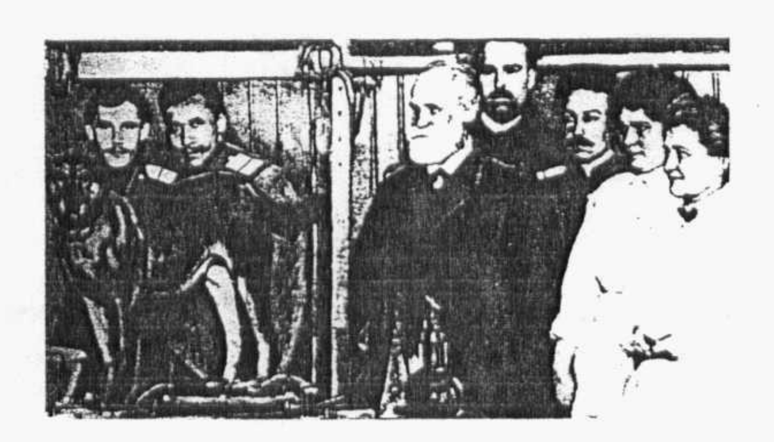
presentation of food comes to elicit many of the same eating behaviors,notably saliva flow, as the food stimuli.

Food or presentation of food has come to be called an unconditioned stimulus, or UCS, meaning that it is a change in the organism's environment to which it normally responds in a reflexive, automatic way. Salivation, the reflexive response, is called an unconditioned response, or UCR. The tone is originally neutral and does not stimulate salivation. When it acquires this new, conditioned property, it is labeled a conditioned stimulus, or Cs. Similarly the dog's response of salivating to the CS is called a conditioned response, or CR.

Pavlov and subsequent researchers have used many CSs in conditioning other than tones, including lights, pictures, and virtually every form of sensory stimulation. A great many involuntary responses also have been conditioned, including; such diverse behaviors as perspiration and eye blinks (for more detailed analysis of the classical conditioning see Ferster, 1982; Pavlov, 1960; Hilgard & Bower, 1966).

A classic example of respondent conditioning in human experimentation has been provided by Watson and Rayner (1920). A one year old orphan child "Little Albert" showed no signs of fear or disturbance in the presence of a white rat. Albert did, however, became extremely upset when

Fig. Ivan Pavlov and his staff in a classical photograph with the apparatus used in his conditioning experiments.



a loud and unexpected noise striking a steel bar with a hammer was made. Albert then became startled, began crying, squirming, and trembling. Observing these two natural responses, Watson and Rayner began presenting the white rat to Albert and immediately thereafter banging the bar with the hammer. Not surprisingly, Albert continued to become disturbed by the noise, but this time his disturbance occurred in the presence of the rat. After only seven pairings of the rat with the noise, the sight of the rat alone caused crying and distress. Albert had become "rat phobic".

It should be clear that in this case the loud noise is the UCS, and Albert's reaction to the noise a UCR. The acquired or conditioned response of distress represents a CR to the CS of a white rat.

A familiar example is the young patient who have had unpleasant and painful experiences in the physician's clinic. This patient may respond toward the physician and his or her setting, assistants, and instruments with fears and anxiety. We may also be familiar with fears, anxieties, aversions, joys or other strong emotional responses that become attached to neutral stimuli such as certain types of foods, places, and even certain people.

Some of the basic techniques used for changing respondently conditioned responses in clinical practice are:

Extinction and Counterconditioning:

Conditioned responses may be weakened through an extinction procedure. Extinction is simply the repeated presentation of a CS without an associated UCS. In such a procedure the conditioned behavior begins to lose its reinforcing properties and eventually decreases or revert back to its neutral state. Many learned fears are short-lived, thanks to extinction.

Conditioned responses may also be lost through counterconditioning. Counterconditioning is achieved when a response is conditioned to a CS that already elicits another incompatible CR. Continuing with the case of little Albert's phobia, generating pleasurable or enjoyable feelings in Albert by, say, giving him favorite foods or toys with the white rat present, the CS for fear, could lead to a conditioned association of pleasure with the rat. Such a procedure has been described by Jones (1924). The conditioned fear is displaced through counterconditioning.

Generalization, and Discrimination:

Stimulation, especially as it occurs in our natural environment, rarely occurs in isolated or pure forms as in the sound of a complex stimuli such as various people; situations such as a job, a party, or an accident; and objects such as a bus, an office, or an assignment. Furthermore, different stimuli may affect us in similar or

greatly different ways. To the extent that a stimulus similar in some way to a CS does not elicit the CR, discrimination is said to be operating. Albert may not become upset when a brown rabbit or a teddy bear is brought into the room.

Similar reactions to different stimuli may result from a process of generalization. When a stimulus other than, but similar to, a CS elicits the CR, in whole or part, generalization is said to have occurred. Thus, Albert might respond fearfully to both a white rat and a small white rabbit. The fear might even generalize to small stuffed animals or to his mother's fur coat. Many examples of generalization occur in everyday living. A tough pediatrician wearing a white coat and have worn horn-rimmed glasses; another doctor with a similar appearance may at first evoke the same negative reaction that the first physician did.

Higher-order Conditioning:

Sometimes neutral stimuli, when paired with CSs themselves come to take on some of the properties of those CSs. In such higher-order conditioning one CS actually serves the function of a UCS in establishment of a second CS. In everyday experience, the consistent bearer of bad news is not a welcome guest. For Albert, the experimenter (originally a neutral stimulus) who repeatedly brings on the

feared rat may himself become feared. Again, in this process of higher-order conditioning, CSs function much like UCSs in first-order conditioning with neutral stimuli (e.g., the experimenter) becoming capable of eliciting the same CRs (fear) originally associated only with the first CS (white rat) and UCS (loud noise).

OPERANT CONDITIONING

Operant conditioning refers to behaviors that are modified or increased by the consequences that follow them.

Although E. L. Thorndike (Borger & Seaborne, 1982; kimble, 1985) was the first to begin the study in the operant conditioning, the name most often associated with operant conditioning is that of B.F.Skinner. It was Skinner (1938) who first developed the well-known operant conditioning chamber, or Skinner box, that resulted in extensive research on this form of learning. A Skinner box is simply an enclosed compartment equipped with one or more buttons or levers that can be depressed easily by a small animal, a food chute through which food can be presented automatically, and usually a source of stimulation by sound or light. A Skinner box can be programmed so that when the lever or button is depressed, a small amount of food pellets or grain tumbles down the chute. A hungry animal very readily learns to depress the lever to obtain food. In

Figure

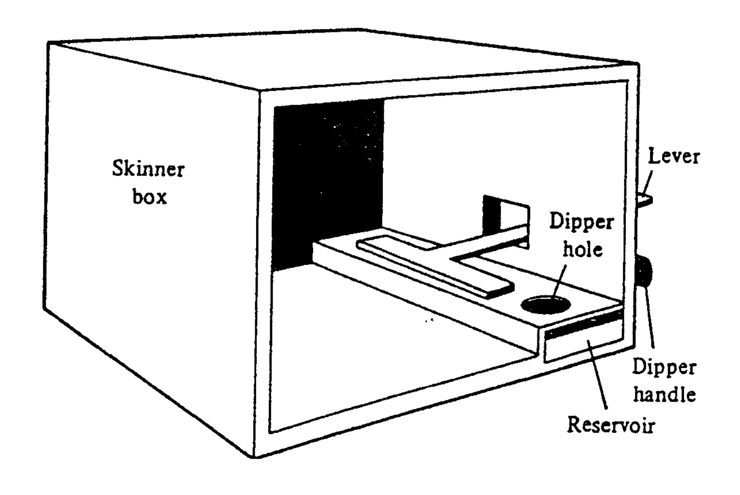


Fig. Skinner's Box used in his operant conditioning expirements.

conditioning of this nature the animal operates on his environment. In other words, the animals' lever pressing is instrumental in obtaining food. Hence, the corresponding names operant and instrumental conditioning. Lever pressing, then, is the conditioned response, and food pellets are the operant reinforcers. The important point to remember in comparing respondent and operant conditioning is that in the latter case the organism, human or subhuman, actually changes his environment during the process of learning and performing learned behaviors. As such, operant conditioning normally deals with voluntary behavior. (Basic principles of operant conditioning are fully explained in Bower, & Hilgard, 1981; Hill, 1977; Skinner, 1938).

The term operant conditioning refers to the development of behavior patterns that are under the voluntary control of the learner. The learner can choose to make a response or not depending on the consequence associated with the behavior.

Operant conditioning accounts for normal and abnormal behavior more frequently than any other single psychological process. Much of our work and play behavior is centered around obtaining rewards or enjoyment. Clearly, however, we are not guided solely by our desire to satisfy our hunger, as in the case of a laboratory rat. To understand the operant conditioning of more complex and "remote" human

behaviors, we must further describe the procedures involved. First, there are two general types of reinforcement, primary and secondary reinforcement.

Primary reinforcers are those directly related to primary or biological needs such as hunger and thirst. Thus, food and water are common primary reinforcers. Needless to say, however, not all forms of pleasure are directly related to biological needs. Money, and status are often-cited examples.

Secondary reinforcers, of which money is an example, are desirable consequences that are often related to primary reinforcers but are not themselves biological in nature; money is exchanged for food and shelter. Other examples of secondary reinforcers are doctors and nurses praising of their patients as they comply with certain regiments such as fluid intake or sodium control.

Health practitioners learn to use a variety of operant techniques for changing patients' behavior that interferes with medical treatment or to help them acquire certain adaptive and healthy behaviors. We shall later discuss some of these procedures ~~in the following section~~.

Shaping:

Must a complex and infrequent behavior (e.g., showing a new nurse-student how to administer an injection, or teach a mentally retarded child to dress himself, or brush his/her

teeth) occurs in its final, complete form to be reinforced? To teach a child to recite a poem, must we await the spontaneous occurrence of that entire, complex response so that we can reinforce it?

Obviously such a process would be extremely slow and inefficient. The problem is resolved by a procedure called response shaping. Complex and infrequently occurring behaviors can be taught by reinforcing successive approximations to those behaviors. Such shaping capitalizes on what the organism can do to build new and more complex behaviors. Thus, a rat in a Skinner box can be conditioned to press a lever for reinforcement if we first reinforce him for staying in the part of the cage with the lever, then for touching the lever with his nose or paw, then moving the lever slightly, then pushing it halfway down, and finally depressing it completely. This principle of behavior shaping is basic to much human health learning.

Teenagers, for example, are usually shaped into becoming smokers. A smoking friend will offer you a puff, and when you take one puff, your friend will express approval. Then he may suggest that you hold the cigarette and take a several puffs, and he signals his approval for that accomplishment. Step by step you smoke a whole cigarette, buy a pack, and so on.

Of course, shaping can be used to develop new "healthy" behaviors. An injured with a new artificial leg is shaped very gradually to put on the leg, stand on it, take a step with a help, take a step without help, walk a little bit, and so forth.

Schedules of Reinforcement:

Thus far we have considered reinforcement as an event that follows every response, that is, continuous reinforcement. Other schedules of reinforcement are also possible. Reinforcement may occur only after some of the conditioned or to-be-conditioned responses. Such partial reinforcement may take several forms. First, response may be reinforced after any number, say, 3 or 10. This is called equal ratio reinforcement, denoting that an equal number of responses per reinforcement is required throughout learning and performance.

Instead of requiring a certain number of responses for a reinforcement we may require the passage of a certain amount of time between reinforced responses. Thus, in fixed interval reinforcement the first response to occur after the passage of a given amount of time, say, 30 seconds, is reinforced. Only the first response that occurs following the required time lapse will be reinforced, no matter how many times the animal responds before the interval is completed. If the interval required between reinforced

responses varies about an average length of time such that such responses may be reinforced before or after an average period (25 to 35 seconds), the schedule is a variable interval reinforcement schedule. An individual whose salary is paid on a monthly basis receives variable interval "reinforcement."

The Partial Reinforcement Effect:

The resistance to extinction following partial reinforcement is called the partial reinforcement effect. Some psychologists have conceptualized certain stubborn or persistent human behaviors as examples of this effect (McKinney, Lorion, & Zax, 1976). In such cases we may hypothesize that the person reinforcement involves many "dry periods". The partial reinforcement effect helps to explain slot machine playing behavior as well as other forms of gambling.

Positive and Negative Reinforcement:

A positive reinforcer is a stimulus or set of conditions that the individual seeks. The primary reinforcers of food and water and the secondary reinforcers of money, praise, and attention are all positive reinforcers. We often employ positive reinforcers to achieve certain types of healthy behaviors. We are using positive reinforcement when, for example, an obese patient loses weight, the physician

praises him or her and encourages him or her to keep working on his weight. Every time a smoker takes a puff of a cigarette, a small burst of nicotine is delivered directly to the brain. That burst of nicotine is a mild but frequent reinforcer that is largely responsible for making smoking such an addictive habit (Kaplan, Sallis, & Patterson, 1993).

Conversely a negative reinforcer is a stimulus or condition that is not sought by the individual and will, in fact, be avoided in most cases. Electric shock, extreme cold,obnoxious sounds, and most sources of intense stimulation are negative reinforcers. Social disgrace, fear, anxiety, and guilt are also negative reinforcers that operate in our lives. It is the reduction, subtraction, or withdrawal of such "stimuli" that is reinforcing. That is, the removal of negative reinforcers is an effective operant reinforcer. Thus, we avoid undressing in the winter, overdressing in the summer. We stay clear of situations that make us feel uneasy or anxious, and we learn how to relate to people so as not to anger them and jeopardize or embarrass ourselves.

Punishment:

The effects of punishment are varied and complex. Most often, the immediate effect of punishment is to decrease or eliminate the punished behavior. The total behavioral effects of punishment, however, are somewhat paradoxical. On

the one hand, the reliable effects of punishment in suppressing behavior are well recognized by psychologists. As long as the punishment remains in operation the punishment is not the same as extinction, however, in that punished behaviors tend to return when punishment is withdrawn. Although punishment; produces rapid suppression of responses, such suppression appears to preclude extinction (since suppressed CRs cannot occur in the absence of reinforcement) and its more permanent reduction of learned behavior.

Punishment also may have certain undesirable and uncontrollable effects in producing frustration and general emotional upheaval in the punished organism. The most critical aspect of punishment in the context of behavior control is that punishment alone will not result in the learning of new behavior. Punishment may suppress old behavior, but it provides no guidelines or reinforcement for new, more desirable responses. Additionally, punishment may dramatically affect performance but not the learning of new behavior. For this reason, and because of the unwanted emotional effects of punishment, leading thinkers in the field of learning (e.g., Skinner) have cautioned against the excessive use of punishment to control behavior.

Avoidance and Escape:

Related to punishment is the avoidance and escape learning. In a series of now classic experiments
Solomon and Wynne (1954) found that when extremely intense, aversive shock is used in avoidance conditioning, the avoidance response is learned very quickly, sometimes in only one trial. Furthermore, the conditioned avoidance response is very stable and resists extinction. Solomon and Wynne (19 54), for instance, found that dogs that learned avoidance of intense shock continued to make the avoidance response years and thousands of trials later during extinction when no shock would follow the warning signal. The apparently crucial factor in this relative inextinguishability of avoidance is that an avoiding animal always makes the avoidance response, and thus never "discovers" that shock is not imminent.

This response is seen in human problems. A swimmer may never dive again after the painful and embarrassing first flop. A harsh public speaking criticism experience may prevent an individual from ever again speaking before a group.

SOCIAL LEARNING

THE LEARNING OF COMPLEX HUMAN BEHAVIOR

The concept of social learning evolved from an awareness that much learning takes place not as a result of the deliberate manipulation of rewards or punishments but as a result of observing, imitating, and modeling (Bandura & Walters, 1963; Bandura, 1977; Goldstein, 1984). Modeling, imitation, observational learning refers simply to the acquisition of behavior through the observation of that behavior in others. Much of our behavior results from our exposure to others' behavior and our observation of the consequences of their behavior. Fashion, and popular trends in thinking and acting result from mass behavior modeling. For example, among young doctors wearing white coats, speech styles may have been started by modelling and spread through observing acceptable norms among doctors.

Modelling Processes:

Bandura, Ross, and Ross (1963) sought to demonstrate modeling processes by showing that a group of children who observed aggressive play behavior would themselves behave aggressively when given the opportunity. Thus one group of children saw a model exhibit both physical (hitting, striking with a hammer, throwing) and verbal aggression (saying "Punch your nose") toward an inflated toy.

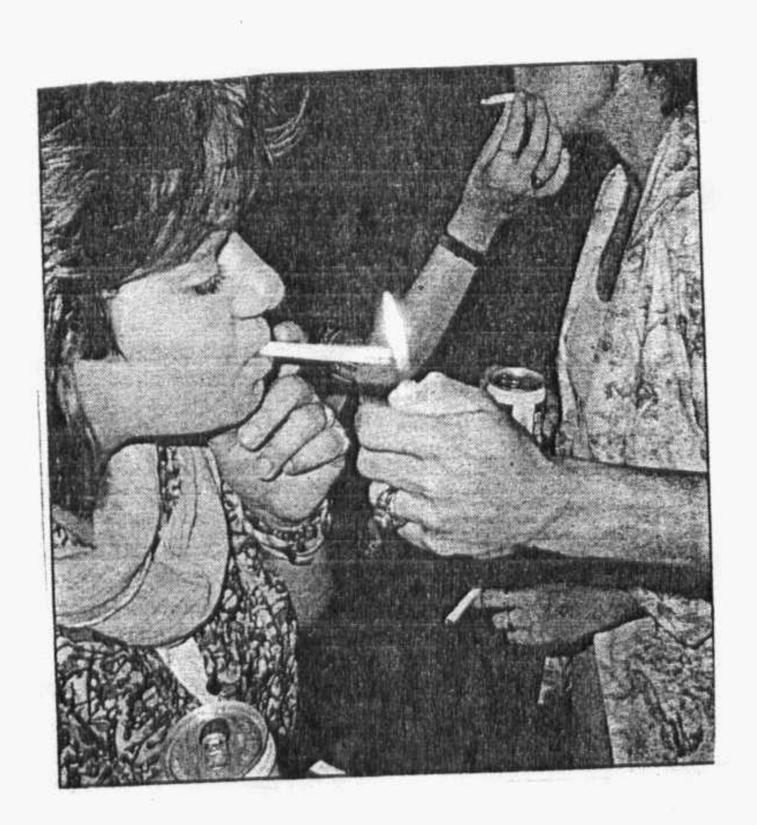


Fig. Much of our unhealthy behavior such as smoking cigarettes and alcoholism can start by modelling, and spreads through observing that behavior in others.

Another group observed the model behave in a restrained, inhibited manner in the same play situation. Children in a control group were not exposed to any modeled behavior. After observation of the model the children were frustrated by being deprived of a favorite toy and then observed in the playroom to determine the extent to which they would display aggressive behavior. The results clearly demonstrate the modeling process. Children who had observed aggressive behavior displayed about twice as much aggressive behavior as children who had observed a subdued model or no model at all. These results have been extended (Bandura, Ross, & Ross, 1963) to include filmed or televised models as well as real-life models.

Model effects also produce other distinctive forms of aggression, socially desirable responses to frustration, and speech patterns. Perhaps the truly pervasive and subtle effects of observational learning are best demonstrated in a study by Berger (1962). Berger found that individuals who observed a person receives what appeared to be a painful electric shock following the sound of a buzzer and the dimming of a light, began to show arousal- related autonomic as well as other physiological responses to the buzzer and light. Although the subjects never experienced the shock themselves, they acquired learned reactions to the shock -contingent stimuli. It is this process of identifying with

the victim that appears to underlie feelings of empathy; as well as the "effectiveness" of horror shows. This same process can be used to explain certain extreme fears or anxieties that exist in spite of the person's having had no unpleasant experiences with the feared object. Doubtless the physiological accompaniments of joy and happy excitement can also be aroused by observation.

COGNITIVE BEHAVIORISM

One objection that has been raised to the use of classical and operant conditioning as theories of learning is that they have no language or concepts to describe events that occur in the mind of the learner. Much of what we learn from our environment depends on cognitive elements, mainly the way certain situations are perceived, analyzed, and interpreted. Edward Tolman (Elsner, 1985) discussed the notion of an intervening set of responses that influence learning. He said that the learner develops a cognitive map which is an internal mental representation of the learning environment. Individuals performing a specific task in a certain environment attend primarily to the task they are performing. Tolman's experiments with his animals suggest that animals, like humans, can build up mental maps, so that they perceive each alley in relation to the other alleys . For example, rats who have been pulled through a maze on a

trolley can later find their way on foot or by swimming -- showing that maze learning need not be a matter of a sequence of responses. The mental map includes expectation about the reward system that is operating, the spatial relationships that exist, and the behaviors that are of highest priority. An individual's performance in a situation represents only part of the learning that has occurred. The fact that individuals respond to changes in the environment indicates that a complex mental map has actually been developed in this situation.

Tolman's concept of the cognitive map is closely related to a phenomenon called latent learning (Flavell, 1977). Subjects can be shown a deck of cards and asked to remember the figures that are drawn on the cards. Even though the focus of the task is on the figures, subjects can give quite a lot of information about the background of the cards as well. In another example, when a girl enters the classroom, she may always go directly to her own desk. However, she is almost certain to know where her best friends sit, where the teacher looks most often, and where the "best seat in the house" is. The idea that conceptual learning may not be directly observed in behavior is a powerful one. It warns us not to assume that performance is a complete representation of what a person knows. In fact, much of what is learned during childhood may not result in behavior until adulthood.

We can identify several cognitive dimensions that are believed are necessary for learning (Mischel,1973):

1. **Cognitive competence** refer to a person's knowledge, skills, and abilities. Learning is processed faster in people who are cognitively flexible, rather than rigid, and who are more intelligent.

2. **Self-encodings** refer to the evaluation and conceptualization of information about the self. An interesting finding in this area is that depressed people tend to evaluate themselves more realistically than do control subjects. Michel (1979) argues that "to feel good about ourselves we may have to judge ourselves more kindly than we are judged". In other words, most people who are not chronically depressed may bias their evaluations of themselves in a self-enhancing way

3. Values and attitudes refer to the worth one places on the outcome of situations. one person may value high levels of task performance, while another may value success in social situations. One's behavior in a situation is influenced by how one values the possible outcomes of the situation.

4.Goals and plans refer to standards of performance that a person develops for himself or herself and the strategies

that the person develops for achieving these goals. Obviously, individuals differ in their goals and plans. These differences will lead to considerable variation in behavior (Ferster & Culberetson, 1982; Falvell, 1982; Newman & Newman, 1984).

LEARNING HEALTH BEHAVIORS

In applying learning principles to problems of health, one should focus on learning behaviors that promote health including exercising, special diets, adhering to physicians orders, early medical check ups, etc. Also, we need to focus on learning how to stop unhealthy behaviors such as smoking, obesity, salty food, and eating high cholesterol foods. Behavior modification techniques based on learning principles have been used in anti-smoking clinics, weight control, alcohol consumption, hypertension, pain, enuresis, migraine, sexual dysfunction, muscle spasms, stress management, and coronary heart diseases (Krasner, 1985). Among the techniques that have been used in these applications are: self help, aversion therapy, token economy, biofeedback, relaxation training, and cognitive behavioral changes. We shall discuss in detail representative examples of these techniques later on.

SUMMARY

Learning is defined as the process by which behavior is acquired or changed through interaction with the environment. Learning theories are developed to account for the causes and results of change in organism's behavior that occur as a result of experience and interaction with environment. This chapter aimed to familiarize ourselves with the major theories and models that explain the concept of learning. Four such models have been reviewed, analyzed, compared and examined in terms of their implication of studying human behavior in several areas of human interaction. Those were: (1) classical or respondent conditioning, (2) instrumental or operant conditioning, (3) social learning, and (4) cognitive learning.

Respondent conditioning refers to situations in which a neutral stimulus is paired with an unconditioned stimulus in such a manner that subsequently the neutral stimulus comes to produce a response similar to one naturally elicited by the unconditioned stimulus.

Several concepts related to this kind of conditioning were cited including extinction, stimulus generalization, counterconditioning, and discrimination.

Operant conditioning is a different kind of learning through which an individual learns to perform an act in order to receive reinforcement. The individual operates on

the environment for a satisfying consequence. Primary operant reinforcers versus secondary operant reinforcers have been discussed and compared. Concepts such as schedules of reinforcement, fixed interval reinforcement, negative reinforcement, punishment, and avoidance behavior have been explained in terms of their role in operant learning.

For an understanding of more complex behavior, the social learning theory has been reported. The concept of modelling as the basic core for social learning has been found needed to account for learning complex types of behavior such as aggression and/or those types of behavior that takes place not as a result of the deliberate manipulation of rewards or punishment but as a result of observing and imitating.

Finally, the cognitive behaviorists suggest that a one's behavior in a situation is influences by a complex set of cognitive dimensions including cognitive maps, knowledge, expectations, goals, and how one values the possible outcome of the situation.

CHAPTER NINE

HUMAN BEHAVIOR AND SOCIAL INFLUENCES

CHAPTER NINE

HUMAN BEHAVIOR AND SOCIAL INFLUENCES

The understanding of the social basis of behavior is of extreme importance to clinical and medical practice because so much of health related issues is influenced by social factors.

Social Psychologists study how people influence each other. They do this in three ways. First, by looking at the behavior of people in groups to determine how their attitudes and actions are shaped by social influences. Second, by looking at our interpersonal behavior. This is done by focusing on our behavior as a product of our social interactions with others including how we interpret or perceive social situations and the effect this has on our behavior. Third, by focusing on the more remote, indirect influences in society-- family, schools, work, social class, culture, values, and so forth. The focus of this chapter is to examine the role of social factors on our behavior with emphasis on our health related reactions to social influences.

Generally speaking, social influence occurs when one person or group induces a change in overt (manifest) or covert (internal thoughts and feelings) behavior of an individual (Winefield and Peay, 1981). We shall discuss in

this section some representative topics of social influences.

THE POWER OF SOCIAL NORMS

Each one of us is consigned to numerous groups of highly diverse composition such as the family, the neighborhood, the school, the colleagues, and so on. Technically speaking, a social group is one whose members observe similar norms. A social norm is defined as the laws, rules, standards, and customs into our particular society. By joining a group, you share its common norm and you will probably come to see other people and events as the members of your group do.

Social norms are acquired over time and apply to just about everyone. Solomon Asch (1955) was one of the pioneers in studying the influence of group norms on our behavior. In a classic experiment, he asked some subjects to judge the length of various lines. One member of each judging group was a genuine subject: all the others were asked to deliberately exaggerate the length of the lines when reporting their judgment. Some of the real subjects gave in to social pressure and went along with the wrong judgment. roughly 35 percent of the subjects yielded to the consensus of the group although they judged before as wrong.

In a similar experiment, one of the group members came over to the subject's side and agreed that the line was

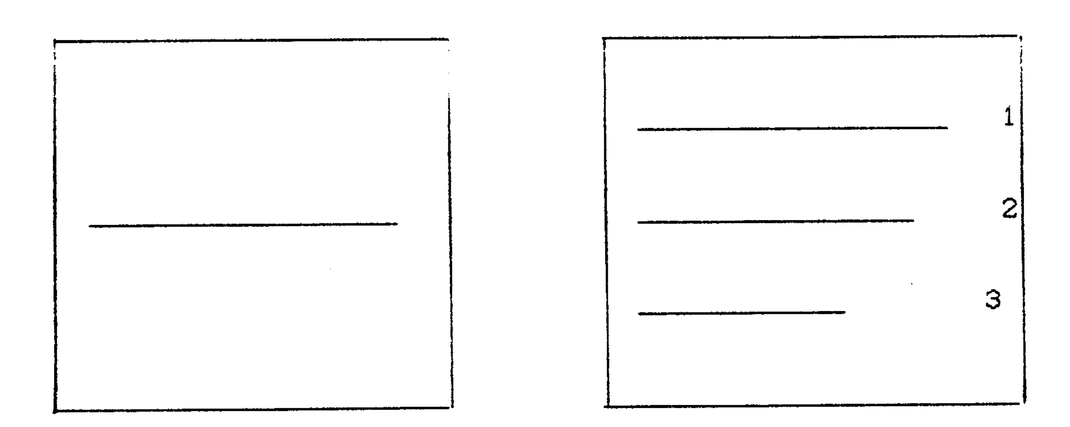


Fig. Line comparison cards used in Asch's experiment. subjects were asked to state which of the three comparison lines (right) matched the standard line (left).

shorter than the rest of the group had said it was. With just one person on the side of the subject, the group pressure disappeared, and the subject's expressed errors in judgment decreased dramatically. It would appear that group pressure is indeed a powerful force--but only when we are in the presence of a group whose members unanimously holding different view.

All social groups develop norms connected with the group's main purposes and activities. Physicians form norms about medicine, not about politics and art. When a group member deviates from the generally accepted norms, various kind of persuasion, pressure and sanctions are exerted in order to make him/her conform.

Conformity:

Conformity to group norms can occur for many reasons. People will conform most to groups which they are keen to belong to, and where they are not yet fully accepted by the group. The new medical graduate will exhibit interest in dressing and talking like doctors more than his seniors. Individuals with low self-esteem are more easily pressured to conform than individuals with high self-esteem. Also, if the individual has little self-confidence for a specific task, he or she will be more likely to conform to the group more than the individual who is experienced about the subject.

Lastly people will conform more when the issue is vague or ambiguous and when the person is not well informed about it. Muzafer Sherif asked students to observe an ambiguous stimulus, namely a pinpoint of light in a dark room and tell how much the light moved. Each made his/her own personal judgment. When the students were retested in groups, they changed their judgments "personal norms", to get closer to a "group norm" that made by the group.

The influence of group norms, or lack of socially accepted norms, on behavior has been studied in terms of its relationships to psychopathology and abnormal behavior. A social environment characterized by the breaking down of social norms and regulations, and pervasive alienation from the broader society appears to produce inadequate conscience

development, lack of concern for others, and destructive, antisocial behavior (Coleman et al, 1984).

Recent studies showed that building social norms can influence health behavior including compliance with medications and treatment regiments. Partners and peers may help prevent relapse in smoking cessation programs or may be associated with improved outcomes in weight loss programs (Kaplan, Sallis, & Patterson, 1993, p. 142).

OBEDIENCE TO AUTHORITY

In a now famous experiment, Milgram (1965) wanted to know just how far a person would go in punishing another with electric shocks if ordered to do so. A laboratory setting was prepared in which volunteer adult males students and a wide cross section subjects were told they were to collaborate in a one hour-long experiment on the effect of punishment on learning. Subjects volunteered in pairs, one subject was asked to be a "teacher", and the other would assume the role of "learner". The teacher's task was to administer electric shock to the learner whenever the latter made a mistake on a learning test. The learner was a confederate (acting as a student in agreement with the experimenter and without the knowledge of the teacher) pleasant man about fifty years old. The task of the learner was to memorize a list of syllables; and the task of the teacher was to punish wrong responses with electric shocks

of increasing voltage for each successive mistake. The teacher was given a sample shock of 45 volts--enough to make him believe the seriousness of the experiment. Then, he was presented with a generator with thirty levels of shock, ranging from 15 volts to 450 volts at 15 volts intervals. Starting from the 15 volts "Slight Shock" level, the "teacher" was directed to increase the shock to the next level each time the learner fails to memorize, up to the maximum 450 volts "Danger: Severe Shock" level. This final point was marked with red, suggesting that it might trigger a fatal shock. Each shock was administered by pulling a lever. The learner was instructed to give enough wrong answers so that an obedient subject would eventually have to administer a 450 volts level. As you may have guessed, the learner was never actually shocked, but the teacher did not know this and believed the learner was receiving actual shocks.

Sixty-five percent of the subjects (teachers) obeyed instructions to give severe shocks as a penalty for failure. This was in spite of dramatic reactions from the learner including moaning, beating on the wall, crying because of pain. Obviously, the subjects thought they were killing the learner. Milgram repeated the same experiment with women and they responded the same.

Obedience, however, was not without conflict. Most of the teacher subjects protested that they could not go no

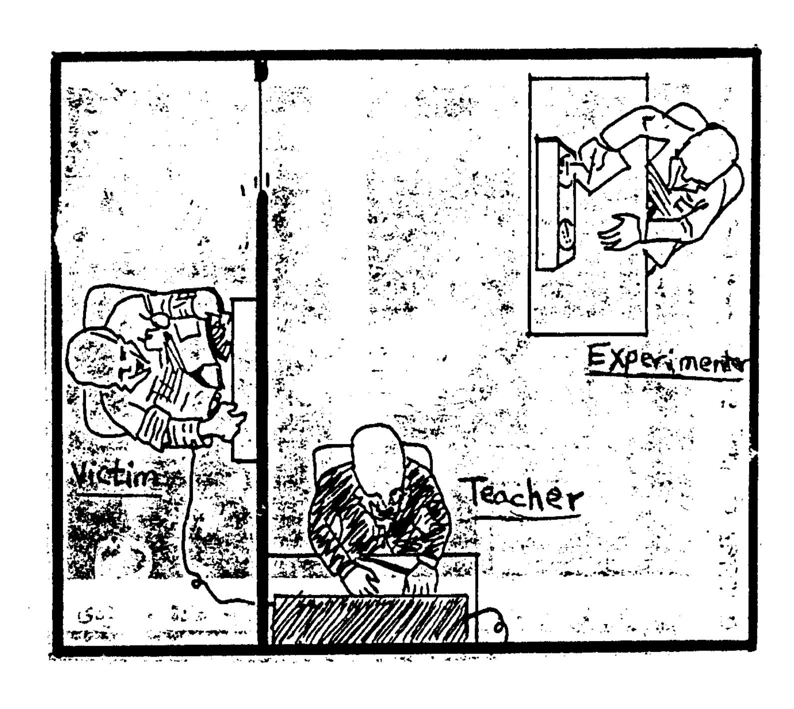


Fig. A design showing the experimental room setting used in Milgram's studies of obedience to authority.

with this "dirty" job. In spit of their conflicts, however, they went right on. The majority dissented but they did not disobey.

The level of obedience, however, was related to certain conditions. It becomes less when the victim is physically closer to the subject. Compliance to authority is also reduced when a subject observes another person who refuses to follow the destructive commands.

Can the results of these shocking experiment be generalized to medical situations? In a study set up at a hospital, 22 nurses were telephoned by a "physician" unknown to them. They were told to administer a drug to a patient while the physician was en route, so the drug would have started taking effect by the time he got to the hospital. The experimenters used the name of a fictitious drug and had placed the bottle, clearly labeled with the maximum dosage, in the medicine locker. On the phone, the physician prescribed an administration of double the safe dosage. Twenty-one of the 22 nurses were stopped by the experimenters as they left the nurses' station, medicine in hand to give to the patient.

Definitely, "blind" obedience can be dangerous. The key to a lot of this destructive obedience may lie in the fact that people are not given responsibility for their own actions. Two psychologists (Worchel & Cooper, 1983) have demonstrated that when people are told they are in charge

and must account for what happens, obedience to these bizarre commands drops dramatically (McMahon & McMahon, 1986).

SOCIAL ROLES

Much of our behavior is a product of our relationships with others. This is seen dramatically in the various roles a person may take in different social settings. A polite submissive pupil one minute may become controlling student leader the next depending on what is acceptable in each social situation. Obviously, in different social situations different sides of the personality are elicited (Argyle, 1968).

Social Role Defined:

Membership of a group involves a degree of social differentiation. A social role is a set of obligations attached to a given position, such as teacher, student, father, husband, doctor, patient, child, brother, man, woman, old, young, etc. Some of these roles are achieved by effort and striving such as the role of the doctor, the professor or the supervisor, but other roles are ascribed positions such as age and sex (Winefield, & Peay, 1981). Roles, with their explicit and implicit obligations, are assigned to different group members by the other members of the group who will, in turn, carry expectations of a

particular type of behavior for each role occupant (Tillard-Cole & Marks, 1975).

Any given individual is a member of many groups and therefore will occupy many roles in one given group; in the hospital, for example, the doctor is a therapist for his patients, an employee for the administration, a colleague for other fellow doctors, and a medical guide for his students, and the rest of the paraprofessional staff, etc..

Although roles are prescribed by society they are usually not written down in any formal sense, but rather are generally agreed upon by the members of society. However, performing roles requires learning and experience. Some roles, such as that of student, housekeeper, do not require very intensive learning. Other roles such as a hospital administrator require long training and are not easily mastered by anybody. It may be expected, therefore, that individuals who enter a new job might experience more stress than those who are more experienced in the same job. Indeed, a recent research done by Shaw & Riskind (1983) confirmed that people who enter particular jobs are likely to experience high levels of stress.

Social Roles' Influence on Human Behavior:

People build certain expectations for the behavior of an individual in a given role. Such expectations do influence our social behavior and make us try to create good

impressions to meet the expectations of others. The physician establishes good rapport with his clients, exposes him/herself to new developments in his field, builds some ethical norms in dealing with his patients in order to be capable to maintain the "right" impression.

Role Conflict:

People are often exposed to role conflicts, usually between the demands of different roles, such as how much time a doctor devotes to the job, the wife, the friends, or the children. Role conflicts arises when an individual gets caught between gratifying basic desires and living according to accepted standards. Role conflicts can also result from striving to satisfy two incompatible basic desires. An example of this type of conflict is the doctor-businessman role as each role makes inconsistent demands for satisfaction.

Role conflicts can also be found in medical settings. The doctor who is confronted by a serious problem in one of his family members is exposed to conflict between his role as a neutral doctor and his role as an emotionally concerned family man. Therefore, some doctors seldom treat their own family members. Role conflicts can also be experienced by other allied medical workers such as nurses. Research on nurses in medical settings show that they are good sample for research on job stress (Schneider, 1985; Sheridan &

Abelson, 1983). One of the acceptable interpretations for this finding lies in role conflicts. Role conflicts among nurses usually come from the inconsistent expectation of two roles, when, for example, directions from a doctor (one role) contradict those of immediate superior or the demands of the general administration (Winefield, & Peay, 1981).

Reaction to Illness and the Sick Role:

When individuals minimize the significance of symptoms, delay in seeking medical care, or fail to comply with treatment and rehabilitation regimens, they are assumed to adopt the sick role (Krantz, Grunberg, & Baum, 1985). To succeed, medical therapies require that the patient follow the physician's directions, but an extensive literature reports disturbingly low rates of compliance to treatment. One alarming example is the sizable number of heart attack patients who procrastinate in seeking help, thereby diminishing their chances of survival (Krantz, Grunberg, & Baum, 1985).

Some people attempt to gain admission to the sick role when in fact their state of health does not warrant it. For these people, the sick role is probably an attractive way to receive more attention and concern from those around them, or they, because of their adherence to the sick role, are relieved of everyday responsibilities.

Recently, health psychologists have shown increased attention toward understanding mechanisms of sick roles including symptom perception, compliance in health settings, and coping with chronic disease (Pennebaker, 1982; Leventhal et al, 1984; Burish & Bradley, 1983).

ATTITUDES

These reflect our likes and dislikes. They often come from our experiences or from those of people close to us. They either attract us to things or make us wary of them.

We have many kinds of attitudes, and some of them have strong implications in health issues such as our attitudes of prejudice and discrimination.

Attitudes of Prejudice and Discrimination:

These refer to the tendency to feel, think, or behave in a hostile way towards certain groups or individuals because of their nationality, ethnicity, and/or religion. Research have shown that the more certain minorities or groups are exposed to prejudice and discrimination in employment and education the more they are vulnerable to health problems. For example, many more women than men present themselves for treatment for various emotional and mental problems such as depression and anxiety. Also, larger-scale surveys reveal that blacks in the U.S. commit a disproportionate number of violent offenses (Chilton &

Galvin, 1985) and receive harsher punishment than whites (Petersilia, 1985). Recently, Bond and others with an archival method, studied 453 incidents of violence at a state psychiatric hospital for adolescents. Records revealed no difference in the number of violent acts by White and non-White patients. However, the White hospital staff physically restrained non-White patients nearly four times as often as they restrained Whites (Bond et al, 1988). Therefore, community surveys have shown that blacks and minority groups in the United States have higher rates of distress than whites, and many mental health professionals believe this is a consequence of exposure to experiences of prejudice and discrimination.

SOCIAL SUPPORT

Recently, there has been a great deal of interest in social support. Studies have shown that interpersonal relationships can protect people from the negative effects of stress. Social support takes several forms such as the expression of positive affect or emotional support, expression of agreement with one's feelings and/or beliefs, encouraging the "ventilation" of feelings, provision of advice or information; and the provision of material aid (Wortman, 1984). Research showed that there are several distinct types of support ranging from living arrangements



Drawing by Marcia Klioze

Social support can protect people from many negative effects of illnesses' related stress.

(e.g., living alone or with others) to frequent social contacts and involvement in social organized groups.

Research on the relationship between social support and course of health has shown some interesting results. For example, Brown & Harris (Kessler et. al., 1985) demonstrated that among a sample of urban women who experienced significant life stress, the presence of an intimate, confiding relationship with a friend or a husband seemed to protect women from depression. Bowler (1983) demonstrated that lack of social support due to leaving home has been found to increase stress among expatriates in Saudi Arabia. Numerous studies have, also, been conducted to assess the impact of social support on adjustment to specific life stressors such as widowhood, unemployment, and criminal victimization. Such studies have found social support to be an important predictor of subsequent emotional adjustment.

To facilitate coping with life transitions and stress raising situations such as going to college, or getting married, social support has been used as a therapeutic mean. Such therapeutic use indicated that social support protects individuals at risk from subsequent mental disorders (Kessler et. al., 1985). Current data provide comprehensive evidence indicating that social support is also protective against heart diseases (Kaplan, Sallis, & Patterson, 1993, p. 141).

Obviously, the study of social support and health issues are considered the foundation on which preventive interventions to care for high risk populations are constructed.

CHAPTER TEN

THE EFFECTS OF SOCIAL GROUPS, ENVIRONMENTAL SURROUNDINGS, AND CULTURE

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THE EFFECTS OF SOCIAL GROUPS, ENVIRONMENTAL SURROUNDINGS, AND CULTURE

Social life plays an extremely important part in our lives. The various influences operating upon us start early by our family, then by later influences coming from all other social surroundings and social groups, in schools, work, and leisure. We will consider some of these influences with emphasis on their relationship to health issues.

EFFECTS OF PARENTING

The family serves a variety of social needs, most important of which is its role in the socialization of the children. It is commonly accepted view that children acquire certain aspects of their later personality in the course of early social interaction with others--chiefly parents or parent-surrogates. We shall consider below the main findings on the effects of various child-rearing techniques.

Certain dimensions of parent-child relationships are now known to be particularly important. However, it should be noted that a parent-child relationship is always bidirectional; the behavior of each person effects the behavior of the other. For example, it has been widely reported that a withdrawn, unresponsive child has parents

who often seem cold, reserved, and distant. Such a relationship does not necessary mean to blame parental coldness for the child's withdrawn detached behavior. Some research showed that parents restrict their emotional involvement as a way coping with a profoundly unresponsive child (Schopler, 1978). Coleman and his colleagues have also noted that some of the disturbances commonly found in the parents of schizophrenics is a reaction to the child's disturbance rather than the other way around (Coleman, Butcher, & Carson, 1984). A particular cause-effect relationship may, then, be difficult to infer, or may be only confirmed under certain conditions. Although the influence of the parent on the child is more important in shaping the child's behavior than vice versa, most of the findings on the effects of various child-rearing practices are based on correlational and factorial studies. Some of parenting practices especially those correlated with emotional disturbances will be discussed below

Restrictiveness versus Permissiveness:

Restrictiveness refers to the parents rigid enforce of rules and standards and give the child little autonomy or freedom for growing in his/her own way (Coleman, Butcher, & Carson, 1984). Firm and consistent discipline is very effective style in conscience formation. Social psychologists and mental health researchers have documented

evidence indicating that strict discipline may go further creating not only obedient child but also guilt ridden and over controlled. Mental disorder is commonly associated with discipline which is too strict. Anxiety neurosis is an extreme case of the over-controlled personality resulting from a strict upbringing (Argyle, 1968).

Children who are brought up in a more permissive, free manner have less respect for authority but are more outgoing and popular with peers. Permissiveness can be exaggerated in cases when parents surrenders to uncontrolled child and fails, therefore, to reward desirable standards of living. The spoiled, selfish, inconsiderate, and demanding personality is usually associated with such parenting styles. Overly indulged children also tend to be impatient, to approach problems in an aggressive manner, and to find difficulty in accepting frustrations in the interests of long range goals (Baumrind, 1975). Hysteria, psychosomatic complaints (especially in women), and adjustment difficuities to work (especially in the adult years) are related to a history of overprotection by the mother.

Warmth and Acceptance versus Rejection:

Warmth and acceptance dimension represents a very influential aspect of child rearing, and includes affection, and the use of praising, reasoning, and positive

reinforcement as means of discipline (Argyle, 1968). The most important effect of warmth is that the child identifies with the parents more and takes them as models. When identification occurs the child can easily adopts the beliefs and attitudes of the parents. Therefore, it was found that warmth and acceptance on the part of the parents lead to a number of healthier development including caring, conscience, and sympathy.

Rejection, on the other hand, is represented by coldness and detachment. Children brought up in a cold rejecting atmosphere show great deal of hostility and dependency (Argyle, 1968). Rejection is considered one of the major resources of delinquency. Other characteristic reactions to parental rejection is excessive approval-seeking from others; and this lead to either making impossible demands on a person for constant attention or by behaving in a provocative, hostile, or unacceptable manner guaranteed to evoke rejection (Zarb, 1992).

Punishment:

Correlated with rejection is the use of punishment including physical punishment, psychological punishment (withdrawal of love). Punishment can be an effective tool for modification of behavior but must be used sensibly. Extreme physical punishment seem to produce undesirable effects such as overdependence, anger, hostility, pre-

occupation with revenge, submissiveness, and fearful obedience(Axlerod, 1983; Zarb, 1992).

Psychological punishment by withdrawal of love reduces identification with the parents and inhibits the chances of adopting parents' values and morals because the child becomes more concerned about losing love than the issue he/she is punished for it. Generally speaking, mental disorder is commonly associated with discipline which is too strict.

For punishment to be effective, it must fit the wrongdoing, and not to be too harsh or too lenient. Punishment must also be related to specific maladaptive behavior and not punishing the whole person. The child must know why he/she is punished and what are the acceptable norms of acting.

Perfectionism and Unrealistic Demands:

Parents sometimes try to put unrealistically "high" demands. Through parental attitudes, children can acquire unrealistic expectations about themselves. If they fail to achieve, such children become guilt prone , self accusing, and depressed. Dempsey and Zimbardo (1978) noted that many people who consult psychotherapists today do so because they feel that they have not lived up to all that was expected of them.

Faulty Communication:

Certain families force their children to behave in a manner that contradicts their children's feelings and perceptions. Such communication style is called "double bind", and refers to receiving contradictory messages, and there is no way out of the bind (Bateson et. al., 1956; Madanes, 1988). To such children, responding positively to one message is to deny the other. They become "caught up" and victimized by whatever responses they communicate. If they try to be affectionate, they are met with criticism and rejection. When they remain distant, they are criticized for not being warm and more affectionate. Carson (1983) observed that such form of family communication has a special relevance for the schizophrenic type of disorder. It should be noted, however, that the presence of schizophrenic in the family might cause parents to communicate in such a strange way. Therefore, a definite cause-effect relationship between communication in the family and poor mental health among children is still not established.

Other types of faulty communication include fragmented ways of communication and constant interruption, difficulties in maintaining a focus of attention, inability to establish closure attention about a topic of conversation, and undue amounts of hostile and critical

attention focused on the member who is at risk for pathology Coleman & others, 1984; Zarb, 1992).

Recently, there has been heightened interest in Communication-Skills training aiming at teaching parents clear communication in order to make rules explicit rather than ambiguous. It also tries to enhance quality of relationship between family members by facilitating supportive communication styles characterized by empathy and attempts to understand the other person's point of view (Zarb, 1992).

SOCIAL CLASS

Social class is one of the oldest and most firmly established source of considerable differences in rates of emotional and mental health. The dominant line of thinking in this area is that people in socially disadvantaged position show higher rates of psychiatric disorders than their more advantaged counterparts (Schwab & Schwab, 1979). Several studies have found that lower class people were exposed to more stressful life experiences than those in more advantaged social statuses, and that these exposures to stress account for the high rates of mental disorders among the disadvantaged (Kessler, Price, & Wortman, 1985). There is also empirical evidence that the lower classes' great vulnerability to psychological health problems could be accounted for by lack of social support. The evidence for

this hypothesis come from a research done by Brown and Harris (1984) who documented that lower class people have fewer confidants than those in the middle class.

Social class is also related to many aspects of physical illness and health. Lower classes have higher infectious diseases, bronchitis, tuberculosis, and higher infant mortality rates and lower life expectancies than higher social classes (Kaplan, Sallis, & Patterson, 1993). The upper classes have their characteristic diseases as well. Diseases such as coronary disease, alcoholism, and cirrhosis of the liver in Britain are more common in the upper social classes (Winefield & Peay, 1981).

DISADVANTAGED SOCIAL GROUPS

The community surveys in the United States have reported poor health and social functioning among disadvantaged groups such as the Black Americans. Another way to understand such a link relates to the high rates of poverty in such groups. According to a report published by McLoyd (1990) the rates of poverty among black children were triple those of Whites. Beyond the direct effect of limited buying power, poverty presents a host of stressors, including limited choices of housing, schools, and recreation; forced submission to the oversight and control of government agencies; and more negative responses from teachers and other authority figures.

The ongoing stresses of coping with persistent poverty are associated with more depression, anxiety, and hostility; alcoholism, somatic complaints; and eating and sleeping disorders: and psychosis and suicide (McLoyd, 1990). Financial difficulties also promotes marital problems, which are further linked with parents' vulnerability to physical and emotional pathology.

It may also emphasized that because poverty strains, poor families are more likely to have power oriented parenting styles and less supportive parents. Father-child relationships in poor families are influenced by the nature of the father's relationships with the mother (a warmer bond between parents promotes a warmer bond to the child) and by the family's perceptions of his inability to provide for them. Risk of abuse is much greater in economically depressed families (McLoyd, 1990).

WORK ENVIRONMENT

Employment problems and work situation can be a source of stress in several ways. Economic problems and unemployment have repeatedly been documented as a major factor of vulnerability to health problems including mental illness, chronic anxiety, and psychophysiological reactions (Dooley & Catalano, 1980).

Even for people who are employed, job stress and job dissatisfaction can be a source of anxiety, tension and

impaired marital and family relationships. Too much anxiety about work can also lead to several emotional and unpleasant reactions. For example, it is found that ulcers and similar psychosomatics are most common in doctors and managers, particularly those who are ambitious and over-conscientious. In the face of too much competition, students may break down just before examination, largely because of too much anxiety and fear of not going to do as well as they expect (Argyle, 1968). Certain work conditions, such as excessive workload, job responsibility, and dissatisfaction, may enhance coronary risk (House, 1975;), and high blood pressure (Krantz and others, 1985).

Also, one of the major sources of health problems in the work site is the bad relations with other people. It is found that bad social relationships particularly with immediate supervisors can increase risk of heart disease (Krantz, Grunberg, & Baum, 1985).

SURROUNDING ENVIRONMENT

The main point to be presented in this section is that several physical and social environment influences may act on our behavior making us vulnerable to increased degrees of psychological and physical problems. We shall consider particular factors including: crowding, territoriality, prejudice and discrimination, and social change.

Density and Crowding:

The effects of density and crowding on behavior came from animal studies done by Calhoun (1962). As rats start to live in overcrowded environment, they become confused about their social roles, kill one another, and show strikingly peculiar behavior such as homosexuality, violence, and some die from excessive stress.

Human crowding influences are more complex and can lead to inconsistent results. It is for this reason that researchers discriminate between crowding and density. Density is the actual number of people present per square foot, while crowding refers to our *feelings* of restriction in the available space. The negative influences of crowding is mediated by factors such as eye contact. Direct eye contact dramatically increases feelings of crowding, and lead to feelings of alienation, helplessness, and withdrawal (Schaffer & Patterson, 1980). Architectural remedies to reduce feelings of crowding in mental hospitals and prisons may, therefore, prove valuable remedy to problems of violence encountered in such places. Research showed that long corridors increase crowding and private short corridors reduce this feeling (Baum & Davis, 1980).

Territoriality/Personal Space:

Territoriality is defined as the set of behaviors that people display in relation to a physical environment

(home, car, seat) that they term as their own (Edney, 1974). We territorialize space for number of reasons that have to do with our social behavior such as privacy, practical convenience, social status, etc.

Territory can be broken down into what is called personal space, referring to a boundary line, formed by an organism, around self to keep distance from others. The amount of distance that we keep between us and others depends on several variables. People like to be closer to those who are happy and outgoing. Boys compared with girls maintain greater distance when interacting with each other. Culture is also influential. Most orientals, for example, maintain less physical distance than do Western people. Arab friends sat closer to each other in an experimental setting than did American friends (Watson & Graves, 1966). Mazur (1977) reported that non-interacting pairs of male strangers sat closer together on public benches in the United States than in Morocco. In Egypt, however, there were few differences between Egyptian and American males. But Egyptian females kept male friends very far away relative to female friends. In fact, male friends were kept almost so far away as male strangers (Sanders, Hakky, & Brizzolara, 1985). Experimental studies showed that people put under stress do not move as close to one another as those who are not stressed (Dorsey & Meisels, 1969).

SOCIAL CHANGE

Social Change refers to the process through which the society transforms into new aspects of living. Researchers in mental health generally agree that accelerated social and cultural change creates demands for individual adaptation. People and institutions with a long history of cultural stability find themselves pushed into processes of change for which they are psychologically unprepared. It is assumed, therefore, that accelerated social change is a source of considerable stress, demoralization, and sense of helplessness (Black, 1972; Frank, 1978). However, another contrasting view is based on the idea that social change may carry some excitement, and whatever makes life more exciting may indeed reduce the tendency to seek disturbance (Watson & Johnson, 1972).

Recent epidemiologic studies (i.e., the study of health and disease in the community), however, have shown little evidence supporting the view that mental illness and maladaptation are significantly correlated to social change and the complexity of civilization (Rees, 1982). Indeed, in a study (Ibrahim & Al-Nafie, 1988) in Saudi Arabia (a culture known for its rapid social and cultural transformations), it was found that social change carries some excitement for the Saudis, and the Saudis were less upset about adverse social processes than American citizens.

Furthermore, the incidence of depressive symptoms was much less among the Saudi students who were favorable of social changes than those students who indicated that they are upset about such changes in their society. Thus, in rapidly changing societies, change may carry some excitement and challenges which may lead to healthier outlets.

CULTURAL INFLUENCES

Culture is a concept used by scientists to mean the total unique life style of a people including their beliefs, values, and much of the behavior of the individual members. The members of any given society share a common culture which enables them to deal with each other and with their environment.

Culture affects our entire levels of human functioning. Aspects such as the structure of the family, social stratification, our beliefs, attitudes, and ideas are related to the culture which we belong to.

The health of the members of a society is also related to their cultural patterns. Susser and Watson (Winefield & Peay, 1981), almost two decades ago, have noticed that tetanus neonatorum is common among African cultures who apply a herbalist's mixture containing powdered dung to the cut cord of each newborn baby. Western and Westernized cultures have also their particular health problems due to such factors as smoking, alcohol consumption, air pollution,

and open sexual practices. U.S. Latinos who were exposed to American style of living were found to have had less healthy habits including more alcohol use, lower quality diet, and over smoking (Marks, Garcia, & Solis, 1990).

Adherence with treatment and medical regiments is sometimes a severe problem to particular cultures. Some anti health behaviors (such as smoking, drinking, fat saturated food, etc.) are so deeply ingrained in the society that they hinder treatment and health promotion. In these cases alterations in the public policies or in the environment may be more effective in changing behavior of the population. Achieving these policy changes often requires working through agents for transmitting the cultural changes in the society including family, television, and education. There have been attempts to use television in promoting health practices such as increased children's preference for nutritious foods. In one such studies, children who were exposed to advertising for nutritious food showed increased healthy eating habits (Kaplan, Sallis, & Patterson, 1993).

In brief, all cultures have their characteristic health problems and acceptable treatment regiments styles that should be considered in any health promoting policies.

SECTION FOUR

GROWTH AND DEVELOPMENT

CHAPTER ELEVEN

GROWTH AND DEVELOPMENT: INFLUENCING FACTORS AND STAGES

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To develop is to grow, to mature, and to learn. Ordinarily, development refers to the total process whereby an individual adapts to his/her environment. All genetic or learned physical, cognitive, emotional, and social changes related to adaptation in any stage from conception through to adolescence are, then, considered in the study of development.

FACTORS INFLUENCING DEVELOPMENT

The basic factors which influence development are usually conceptualized under: heredity and environment. Heredity is used to refer to the genetic code that we inherit from our parents.

Children inherit certain physical characteristics, such as hair, facial resemblance and eye color, from parents or from different sides of the family. These characteristics are carried from generation to generation by microscopic particles called genes. Genes are located on tiny but larger particles known as chromosomes, which are present in every cell of the body. When the male sperm fertilizes the female

ovum (egg) at conception, a twenty-three chromosomes from the father combine with twenty four chromosomes from the mother carries heredity characteristics to the offspring.

Environment, on the other hand, refers to the broad range of experience that we encounter from living in a particular family, group, and culture. While each of these two factors makes a unique contribution to development, often the two factors interact with each other that it is difficult to separate their influence. More recently, Plomin (1989) reviewed dozens of studies about behavioral genetics. The data reviewed suggested pandemic genetic influence, but they also indicated that nongenetic are responsible for more than half of the variance (differences) for most complex factors such as intelligence, extraversion-introversion, and schizophrenia. Identical twins, for example, show concordance of less than 40% for schizophrenia. Because identical twins are genetically identical, most of the reason one person is diagnosed as schizophrenic and another is not has to do with environment rather than genetic reasons (Plomin, 1989). The complex interplay between environment and genes is most cleat that it is difficult to separate their influence on development and growth.

The interaction between heredity and environment can be seen in more complicated behavior such as intelligence. There is as yet no firm evidence for a single gene effect that accounts for differences in any complex behavior. For

example, earlier reports of a major gene effect on spatial ability have not been replicated (Plomin, 1988), and the so-called genetic influence on schizophrenia and manic depressive disorders may be limited to particular families (Hodginkson et al., 1987). In the case of intelligence, although hereditary factors influence intelligence, recent studies show that enriching the environment of children living in poor areas can increase their IQ's by as much as thirty points (Dempsey & Zimbardo, 1978).

Heredity and environment, then, share intricate relationships. Genes may predispose an individual's certain behaviors, but the environment will determine specifically which behavior pattern would develop (Plomin, 1989).

STAGES OF DEVELOPMENT

Our discussion of life stages will emphasize the following stages:

1. The prenatal Period:

During this period of approximately nine months, the fertilized egg passes through three distinct stages: the zygote (four to seven days), the embryo (ending at eight weeks), and the fetus (the remaining 6 months). The child's general health at birth is influenced by what happens in the womb. For example, fetus can be damaged by mothers who catch diseases during early pregnancy. Some researchers think that

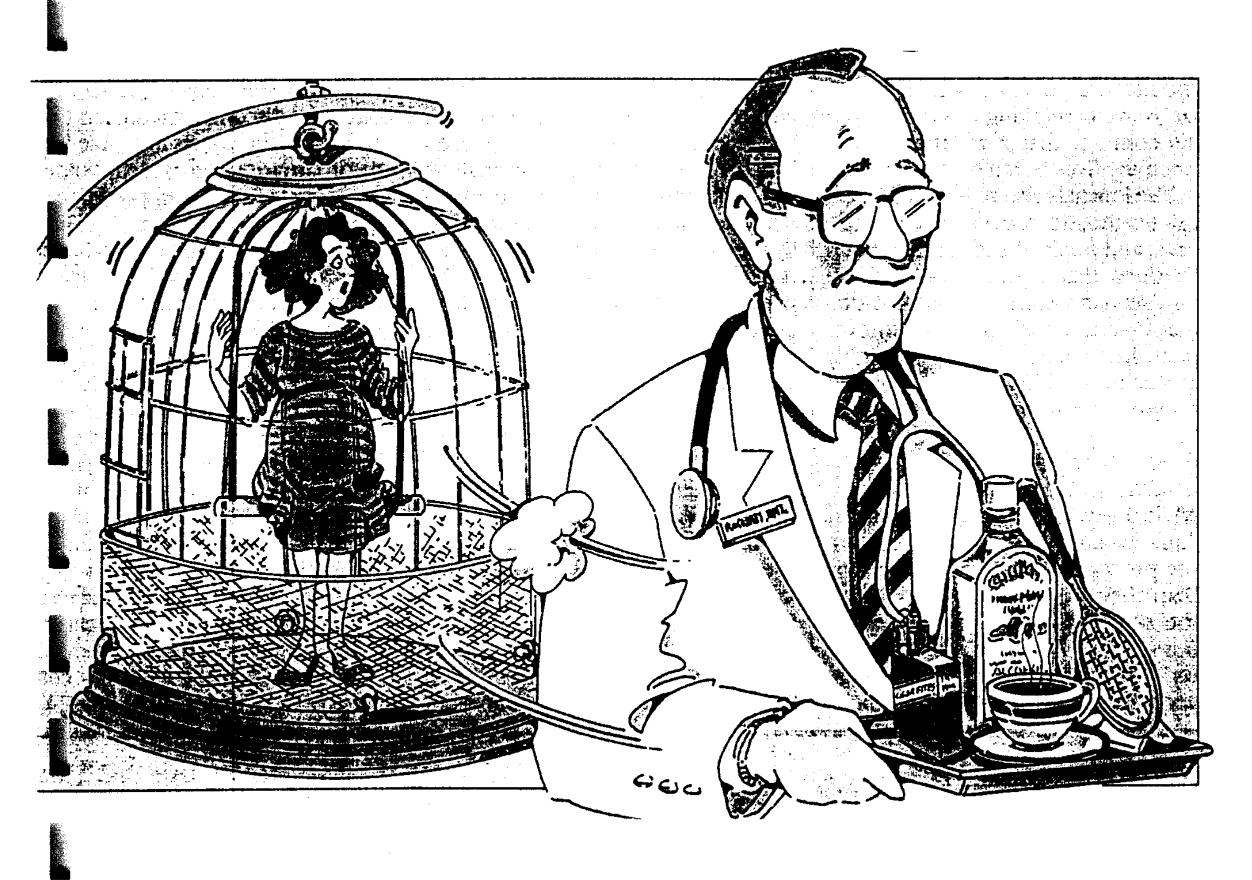


Fig. It is agreed that unhealthy lifestyle of the mother during pregnancy by involving in smoking, heavy drinking, or weight loss regiments can cause fetal health risks.

irritability, excessive crying in some infants seem to be associated with the mother's stressful experiences during pregnancy.

2. Infants and Toddlers:

During this period, from birth to almost four years, development passes through rapid changes in physical, social, and cognitive functioning Three weeks after birth, the baby smiles at faces. By beginning his second year the child shows rapid developments in all areas. We shall discuss in the next chapters the specific developments in the areas of physical, cognitive, social, and emotional areas as can be witnessed in this stage.

3. The Preschool Child:

This phase that ranges in age from 4 years to 6 years, brings a rapid increase in intellectual abilities, especially in the complexity of language. Social life develops rapidly as the child learns to interact with siblings, other children, and other adults. The child begins to learn about his own sexual identity. He realizes the differences between males and females in their appearance, clothing, and socially accepted behavior. At the early years of this stage, the child develop curiosity about the environment, and may ask a great number of questions.

4. Middle Childhood:

This stage usually ranges from 6 years to twelve years of age. By the age of six or little bit earlier, the child should be capable to acquire numerous learning and intellectual skills including reading, writing, and simple mathematical skills. Socially, children become capable to learn cope with school, and the teachers become important figures in their lives. In the later years of this stage, sexual interests and activities may be present, although these may be concealed from adults.

5. Adolescence:

Adolescent years ranging in age from approximately 11 to 21, is the growing up period between childhood and maturity. Among the most obvious features are the physical changes of puberty.

6.Early Adulthood:

This stage begins in the early twenties and ends in the early thirties. The major changes in this stage involve both personal life and career. An age of general good health, although stress related illnesses may begin to appear at this time. People in this age will have made necessary changes to make them begin a family of their own.

7. Middle Adulthood:

Ranges in age from the early thirties and ends in the early fifties. For some individuals, this time period represents a time of planned and deliberate change as a result of gradual realization of the limitations of one's own life. For those who have successfully resolved the issue of the previous stage, this may be a period of great stability and productivity, creativity, and responsibility. Middle age may also be a time of detachment, segregation, and dull self centered existence.

8. Later Adulthood:

This stage begins in the early fifties and ends with death. Psychologists in their description of stages divide this group into two sub-groups: a group that is healthy, socially active and vigorous and a group whose members are marked by helplessness, social withdrawal that may be caused by disability and disease.

The age ranges indicated above for each stage are not meant to be final. They represent approximate figures as taken from other researchers and writers in the field (see for example: Barron, 1979; 1983; Bromley, 1974; Kahn, 1973; Levinson et. al., 1978; Newman & Newman, 1984; Sheehy, 1976, 1981).

Also, the account of development outlined in those stages is sketchy and selective. Therefore, we will attempt

in the following chapters to present the basic themes in the four areas of development of physical, cognitive, social, and moral. It should be noted, however, that development in each area is influenced by changes, developments, and other aspects of maturity in the other areas(Barron, 1983; Newman & Newman, 1984). For example, physical development will influence and be influenced by developments in social areas. Some more specific examples confirming this fact will be shown as we proceed throughout our discussion in each the following chapter.

CHAPTER TWELVE

DEVELOPMENT OF BASIC HUMAN FUNCTIONS

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PHYSICAL DEVELOPMENT

PHYSICAL DEVELOPMENT DURING EARLY CHILDHOOD:

Physical development from the prenatal period through later adulthood passes through variety of physical maturation and changes, some of which are:

Body Stature:

Body stature undergoes considerable change in the first two years following birth. A good example of this is the growth of the brain weight. At birth, the brain weighs

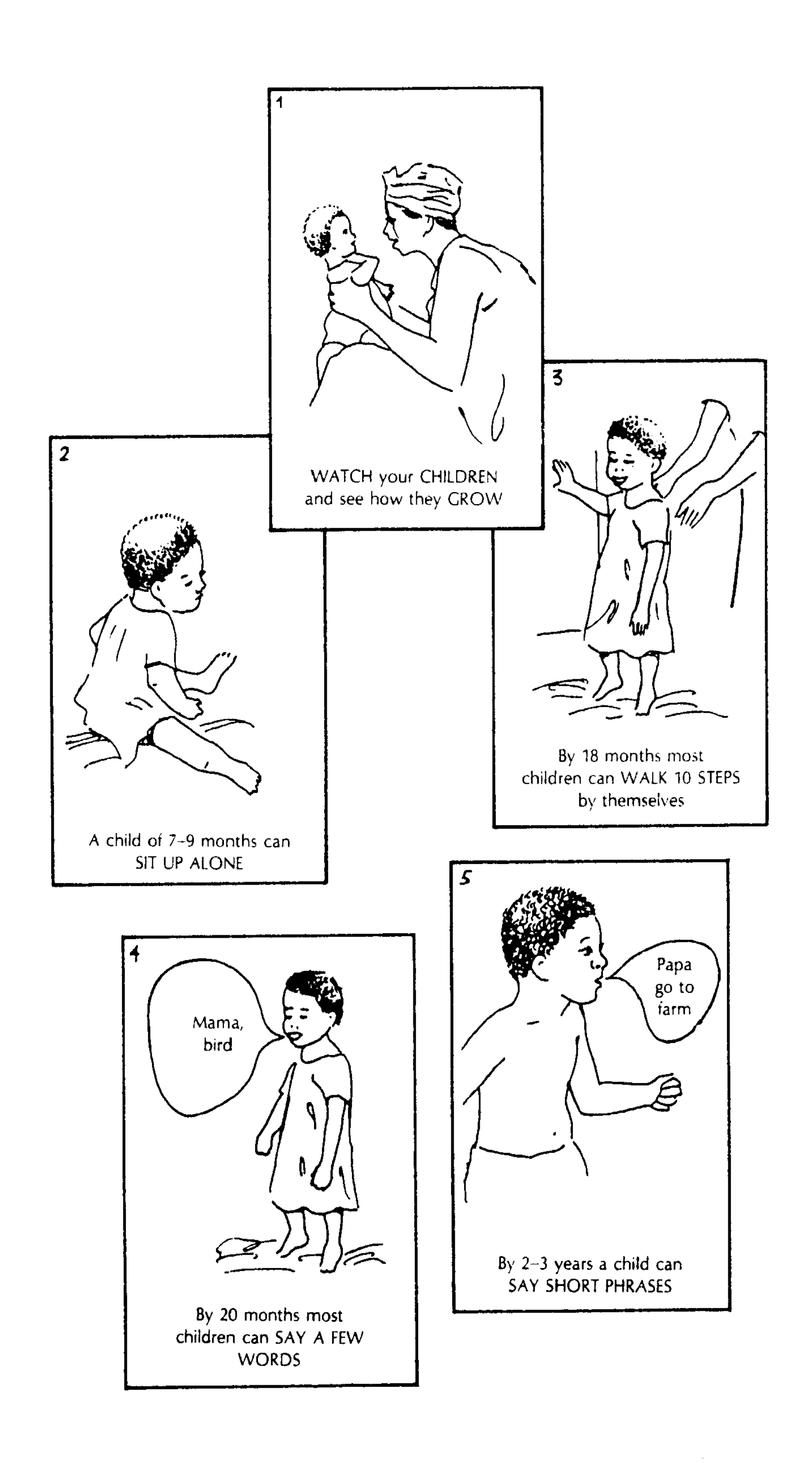
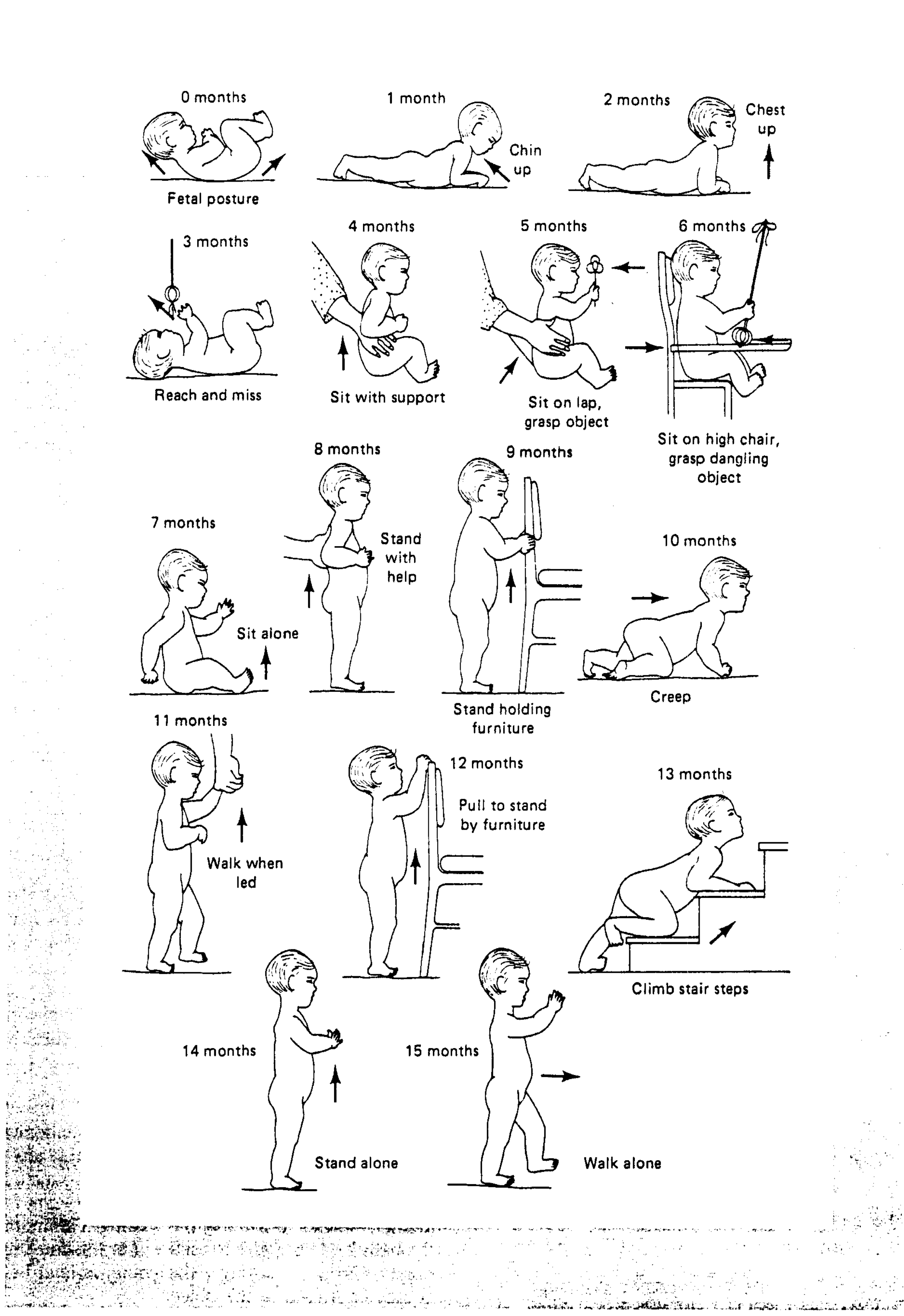


Fig. . Highlights of development.



. . Motor development in an infant.

Fig. Motor development in an infant.

approximately 350 grams, but by age two brain weight has increased to approximately 1000 grams. This is almost 200 percent of all the remarkable gain between age two and adulthood as the brain increases only about 400 grams thereafter (Crider et al, 1983).

Motor Development:

The ability to use the limbs of the body to move around and explore the environment, also passes through rapid changes during this stage. When they are born, infants and toddlers slowly develop gross motor (sitting, crawling, walking) and fine motor (picking up tiny objects) skills. At first, gross motor development proceeds slowly. In the first few weeks, infants usually are not capable of any significant movement. Around the fifth and sixth week, most infants can now raise their heads when lying on their stomachs. The majority of them can, by about three months, roll from a front (stomach) to a back position. Around four months, we expect to see an infant sit with support; by six month, most infants can sit alone. Roughly between eight and eleven months infants begin to crawl. Walking can be mastered by between seven and 15 months by following stages starting from pulling self to a standing position, then side-stepping while holding on to furniture, then standing alone, and eventually walking independently. As they mature, infants slowly develop fine motor skills such as picking up

tiny objects. By 18 month to three years, toilet training becomes the prime learning activity.

PHYSICAL DEVELOPMENT DURING ADOLESCENCE AND ADULTHOOD:

ADOLESCENCE:

The onset of adolescence is often associated with a period of rapid physical change that includes the maturation of the reproductive system, the appearance of secondary sex characteristics, and the redistribution of body weight. The changes associated with puberty generally peak at age 11 for females and age 13 for males. Physically speaking, this marks the beginning of true sexual maturity. For example, girls start to develop pelvic area, breasts, and body curves. A boy of twelve suddenly grows up fuzz sprouting on his upper lip, a voice that sounds more like father's, and testicles that seemed to have appeared from nowhere.

However, the rate of development varies. For example, the time from the appearance of breast buds to full maturity may range from 2 to 6 years for adolescent girls. The male genitalia may take from two to five years to reach adult size (Newman & Newman, 1984). Part of the turmoil and conflicts of adolescents is, indeed, biologically based and part is due to collision between physical urges and social taboos on sexual expression.

Other Physically Related Changes During Adolescence:

Physical changes in life span is a potential source of new stimulation, and new kinds of social interaction. Rapid physical growth in adolescent years will bring several psychosocial changes. Girls, for example, controlled by the fear of becoming physically conscious may start dieting. Other girls and boys become self-conscious about their physical growth and develop shyness and social withdrawal symptoms (Kahn, 1973).

EARLY ADULTHOOD AND MIDDLE AGE:

Motor Development and Coordination:

In early adulthood, the human body achieves full maturation. Generally speaking, people in their twenties are at their optimum physical health and endurance (Hershey, 1974). For example, voluntary muscles, muscular strength coordination, agility, and speed of response all peak before age thirty.

The decline in physical health usually happens gradually over the years to follow. This decline that accompanies middle age and following years is a source of great frustration to the older adult. Kahn (1973) describes the middle age and old age as the age of physical "wear and tear." The necessity to curtail one's physical activity because of illness and physical deterioration is seen by

developmental psychologists as one of the most difficult changes to which older person must adapt (Brody, 1982).

Sexual Maturation:

In addition to motor development and coordination, physical development includes the process of sexual maturation. The dramatic changes in physical appearance, sexual capacity and impulses do have impact on self image, social relationships, and self esteem. In the middle age the changes of involution in the organs of reproduction for women makes a difference to marital relationships. In some cases the wife may feel that she will not be attractive if she is no longer capable of bringing children (Kahn, 1973).

Deterioration of sexual ability in the old age can contribute for some to feelings of even greater physical decline (Newman & Newman, 1984), but for some other old people, the onset of degenerative change and the loss of normal sexual outlets can lead to temporary loss of self-control, giving rise to sexual misdemeanors (Bormley, 1974).

Physical changes because they are more concrete than any other changes, precipitate events for developmental crises and developmental growth. Sheehy (1976) cited many examples showing that conflict about sexuality continue to interfere with personal growth. Midlife impotence, for example, results in over 90 percent of cases (Sheehy, 1976). Masters and Johnson (1970) indicated that the susceptibility of the

human male to the power of suggestion with regard to his sexual prowess is almost unbelievable.

Other physical changes are less apparent but no less important. In women, for example, menopause, or the cessation of the menstrual cycle takes place during the middle years of life. While some women experience emotional problems such as anxiety, and depression, others may not encounter any menopausal symptoms at all.

As sexual changes decline over the years, it no doubt leaves very serious impact on psycho-emotional development as indicated above. Sexuality is also influenced by other psychosocial factors. More than any fluctuation in hormone level, it is anxiety, self-esteem, free floating fear of losing sexual power, that can often make the problems for sexuality development especially among males.

COGNITIVE DEVELOPMENT

The study of cognition refers to the study of how people know and understand. Many of the advances in understanding infants' cognitive abilities are a result of better ways of evoking and measuring infants responses so that they can tell us what they know. As researchers become cleverer at asking the right questions or looking for the right responses, we believe we will find that people at every age

are more cognitively complex than previous researchers had realized.

COGNITIVE DEVELOPMENT IN CHILDHOOD YEARS:

Thinking and Reasoning:

The advances in understanding the development of cognition in childhood years are well presented by Piaget theories on cognitive development. According to Piaget, thinking develops in four broad stages.

The first stage lasts for about the first two years and labeled as the sensori-motor stage. Based on his interaction with the environment, the infant's thinking in the early beginnings of this stage primarily consists of reflexes and shows no awareness of objects as distinct from the action they elicit. The child by the end of this stage begins to react to objects as permanent and independently existing even when they are not within range of immediate perception. Example: at an early stage of this development if a toy is presented to a child and then covered up, the child may cry or loses interest. Later if the toy is covered up, the child will move the cover. This means that the child can now think of things as being permanent and continuing to exist when out of sight.

The second stage runs from about 2 to 7 years and described as pre-operational thought period. At this stage

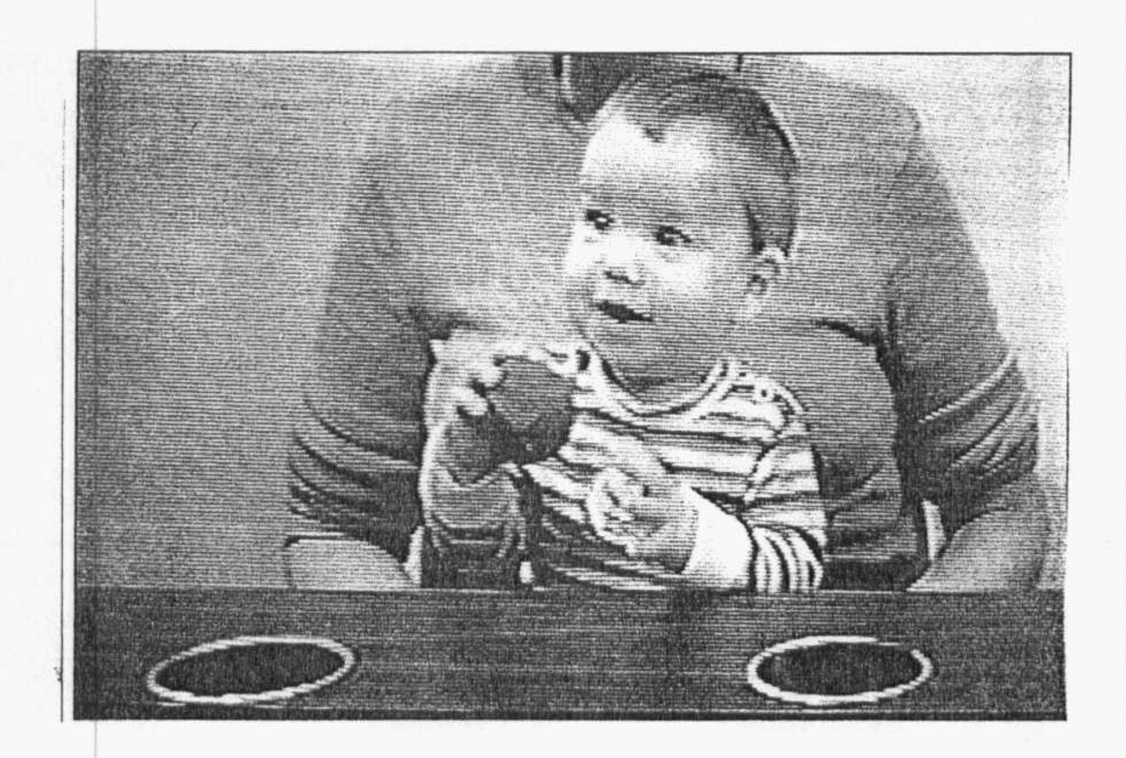


Fig. In the sensorimotor stage, thinking develops through exploring physical properties of the environment by infants.

the child is incapable of distinguishing between inner experience and external factors. Outside objects such as the sun or toys are treated as living, a broom can be used as a horse. Play and language develop sharply in this period. Since the child begins to use personal internal representation of the world, Piaget describes reasoning in this stage as egocentric (i.e., self centered reasoning). Also, one of the most characteristic aspects of this stage is that thinking processes appear to be irreversible. For example, if the same amount of water is poured into two differently shaped glasses (i.e., one taller and the other shorter) the child will report that the amount of water has changed. Therefore, the child in the pre-operational stage is said to lack the concept of conservation, which would allow him to realize that things remain the same despite changes in position or shape.

In the concrete operations stage from 7 to almost 11, children generally do not have trouble with conservation problems and are able to apply logical reasoning to concrete objects and problems. Thinking, however, tends to be related to concrete objects and events, and lacks the ability for abstract thinking.

Language Development:

Language development during childhood years takes several courses of change. Chomsky believes that to acquire

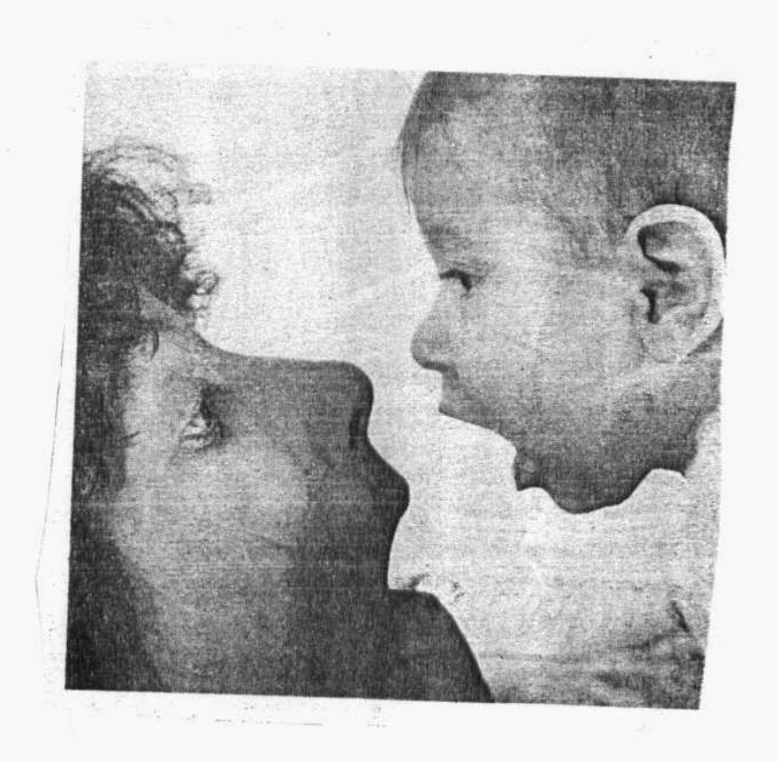


Fig. Active interaction with infants is linked to emotional stability and later intellectual abilities including language skills and attention span.

language, every human being is born with a mental structure referred to as Language Acquisition Device (LAD). This device enables children to process linguistic data selectively from their environment. The course of language learning thereafter takes basic chronologies:

1. Birth ---crying
2. Six weeks--cooing
3. Six months--babbling
    a. Random babbling at first
    b. purposeful, articulated and consciously controlled repetition of sounds later.
4. After 6 months--chance repetition of sound words such as "papa,"and ′mama.
5. Most children produce first meaningful words by end of first year.

The number of words produced depends on several personal, family and cultural variables, but the average course is shown in Table 2.

Memory:

Other cognitive developments in childhood years are in the areas of memory. Not only are children capable of remembering more as they grow older, they also develop strategies for remembering. For example, one of the basic strategies in remembering is to verbally rehearse the items.

Table 2

Vocabulary Milestones

Age	Vocabulary
1 year	3 words
15 months	19 words
18 months	22 words
21 months	118 words
2 years	272 words
30 months	448 words
3 years	896 words,

Studies (Flavell et al, 1966) of children's rehearsal strategies show that it is a matter of development. Five-years-olds almost never rehearse items they need to recall. Seven-year-olds rehearse occasionally, and by ten years of age almost all children will rehearse what they need to recall.

COGNITIVE DEVELOPMENT IN ADOLESCENCE AND ADULT YEARS:

Thinking and Reasoning:

By entering the adolescent years, cognitive aspects develop in new ways. Adolescents' thought becomes more abstract, and they become able to generate hypotheses about events that they never perceived. Piaget and his followers (Inhelder & Piaget, 1958; Piaget, 1972; Piaget & Inhelder, 1969) describe adolescent years as the stage of formal operations. Piaget proposed that adolescent's thoughts are governed more by logical principles than by their own perceptions and experiences.

It is not expected, however, to see mature scientists or profound philosophers by the end of adolescence. It takes several years of adult thinking to bear on reality of significant problems to bring operation thinking to more relevant and significant achievements.

Memory and Old Age:

There are some characteristic patterns of mental life in old age (late adulthood). Memory and other cognitive functions deteriorate. Memory for recent events may suffer in this age. Common among people in this age when conversing with others, is that particular topics that occured long ago become repeated time and time again, creating lack in the conversational patterns of people in this age. Physical, intellectual, emotional, and social characteristics thus become linked with one another in the changing nature of behavior which results from the degenerative processes (Weinman, 1982).

SOCIAL DEVELOPMENT

Social development involves the changing nature of an individual's involvement with other individuals and with groups of people (Maccoby, 1980).

SOCIAL DEVELOPMENT IN INFANCY AND CHILDHOOD:

Attachment:

The earliest social relationships of the newborn appear to be quite non-specific since they are not directed to specific individuals. During the first few months social relationships become more specific leading to the for formation of attachment. Attachment is defined as any

behavior which maintains or increases the proximity of the infant and another person. Examples of attachment behaviors include crying, smiling, clinging (Ainsworth, 1973). Thus, the child feels secure with parents, and becomes discomfortable when they are not around. Separation anxiety may develop in this stage and continues up till almost 5 years.

Attachment is just the beginning of social development. Relationships with parents continue to develop and become more complex during the childhood experience. Deliberately or indirectly, parents try to impose values and beliefs on the child. Children, in turn, develop a sense of who they are and to who they belong. Scientists agree that relationships with parents and peers during childhood years are two of the major sources of social development. We have already discussed elsewhere the deepening influence of the parent-child relationships. A word about peer relationships is necessitated.

Peer Relationships:

Although peer relationships develop rapidly throughout the second year, peer relationships do develop earlier. By about 10 months of age, children begin to smile and vocalize to each other. Infants of this age also touch, gaze, and even follow after one another. Indeed, it is even possible during this early years to distinguish the popular from the

not so popular infants by observing how frequently an infant is approached by other infants. By the time children are three or four years, they become more peer involved. They get involved in make-believe episodes, and even some structured social games. As they grow older, they are more likely to observe a playmate's action and then respond immediately with a social behavior of their own; a social developmental principle called as <u>contingent social</u> responses (Crider et al., 1983).

Social Roles:

Acquisition of appropriate social roles during the course of childhood represents one of the significant social developments. This process begins very early in childhood when parents encourage their children to give up the role of "baby" and to act like a "mature" one.. Other examples are the termination of the dependent child role in later adolescence, the end of the active parenting role in middle adulthood, and the continuous change and eventual termination of the work role in later adulthood. As the dominant roles that absorb an individual's energy change or end, the person is left with a residue of behaviors, habits, and motives that no longer may be of personal use. Changes in social roles bring with them a certain amount of tension and anxiety as old habits are discarded and new behaviors

are acquired. The pattern of role acquisition and role change is of continuous interest throughout the life-span.

Sex Roles:

By sex roles we mean the different types of behaviors that people generally associate with boys or girls. For example, in many current cultures boys are encouraged to be more self-reliant and outgoing than girls, and girls are expected to be more conservative and generally passive. In most societies, children acquire sex roles very rapidly. One way to achieve this is by reinforcing some behaviors and discouraging or punishing others. Another way is via identification with a person of the same sex and to model his/her behavior as we have explained in the ~~are of~~ social learning theory.

SOCIAL DEVELOPMENT IN ADOLESCENCE AND ADULTHOOD YEARS:

Social Relationships:

During adulthood, social relationships take place at many levels. The adult is capable of variety of interactive styles that are appropriate to the level of intimacy that characterizes the relationships in this stage. In fact, even children are capable of making differential communications to people, depending on their age, role, or closeness. In adulthood, however, individuals begin to establish the

quality of their life styles by identifying certain other people as intimate associates, others as good friends, and still others as acquaintances or even adversaries. For each level of closeness, the adult may develop a characteristic social style. The ability to achieve a sense of closeness to a friend or spouse is a major source of life satisfaction in adulthood.

Social Skills:

The ability to demonstrate leadership, to participate in team efforts, and to cope effectively with the demands of a variety of authorities are all components of adult social development. As individuals advance in their careers, new social demands are made on them for administrative, executive, or teaching skills. Adults seek not only to enhance themselves through their social contacts but also to become agents for the development of others.

New Social Roles:

In addition to the development of inter-personal styles and the formation of social relationships, social development involves the formation of a number of social roles that have rather specific prescriptions for behavior. Although it is likely that different cultures will include many of the same roles, each culture prescribes somewhat different behaviors for each of these roles. Age roles and sex roles are among the social roles that take different

shapes throughout life. Age roles and sex roles provide a framework for social development. Each culture has a unique set of expectations for younger people and older people, for males and females and for young males, older males, young females, and older females. This complex set of role expectations provides both ideals toward which individuals strive and restrictions that prevent behaviors thought to be destructive to the culture.

Self Integration:

Social development in the late adult years is also marked by a process of self-integration. In that process individuals attend less to the differences between themselves and others and more to the similarities between themselves and others. Because of their perspective on time, very old people have a greater ability to identify with people of ethnic groups, other historic periods, and other cultures to preserve one's uniqueness and more of a bit of evidence to link one with the rest of humanity.

THE MEDICAL IMPLICATIONS OF DEVELOPMENT

Psychological Problems in Children:

Psychiatrists describe five categories of disorders which are found among children:

1. Mental retardation
2. Behavioral (attention deficits, conduct disorders).

3. Emotional (anxiety, fears, and depression).

4. Eating disorders.

5. Psychotic disorders.

Since mental retardation will be discussed later, no further details will be presented here. The so-called behavioral disorders includes attention deficits and conduct disorders. Attention deficit refers to signs of developmentally inappropriate inattention and impulsiveness. In the past hyperactivity was the name that has been attached to this disorder. Conduct disorders are characterized by aggressive and socially disapproved behavior.

The emotional disorders found in children are not dissimilar to those found in adults, and includes mostly the same categories such as anxiety disorders and depression. However, research showed that although some children's emotional problems persist into adulthood, most emotionally, disturbed children go on to grow without neurosis.

Eating disorders is characterized by gross disturbances in eating behavior such as anorexia nervosa and obesity.

Psychotic disorders are severe and affect many areas of psychological developments. One major example of this category is autism. Since autism and separation anxiety are among most common problems among children and have quite important role to play in medical settings, we will take up

the rest of this section for an account of these two disorders.

Autism:

The essential features of autism are lack of responsiveness to other people, gross impairment in communicative skills, and bizarre responses to various aspects of the environment; all developing within the first 30 months of age (DSM III, 1980). Additionally, there are significant delays in the acquisition of speech as well as the development of some language deficits that may be confused mistakenly with deafness (Weinman & Peay, 1981).

Explanation of autism in the past tended to be environmental. It was claimed that autistic children come from families known for emotional coldness, and obsessive tendencies. But although it was found that prevalence of autism is 50 times as great in siblings of children with the

Autism



Fig. An autistic boy imitating therapist's gesture in in the beginning of imitative skill training. (Source: O'Leary & Wilson, 1975).

disorder than in the general population, the role of family factors in the etiology of autism is uncertain. Firm biological basis has not been yet confirmed. It seem that autism may prove a disorder in which the etiology is of interactive environmental-biological nature.

Current interests in treatment of autism concentrate on modifying and improving linguistic and social skills by specially designed behavior modification programs. Parent effectiveness training programs are currently used to teach parents management techniques in a way, if mastered, will result in controlling a very wide range of behavioral disorders in children including autistic behavior.

Separation Anxiety:

Separation anxiety, on the other hand, develops in the early years of childhood and continues until almost 5 years. Separation anxiety refers to the tendency of certain children to become discomfortable when their parents are not around.

Lowrey (1980) recognizes separation anxiety as one of the major problems during hospitalization. Separation in these circumstances may also be associated with many kinds of discomfort or pain. If hospitalization is necessary, arrangements for parental long visits or accomodation should be planned. Frequent visits with the physicians are comforting and reassuring. For the older child, preparation

for hospitalization should be undertaken. Education, well-illustrated book or informative pamphlets prepared for the child's level of development can be very helpful in reducing anxieties.

Health and Adolescence:

Adolescence is a time when extensive changes in physical, social, and cognitive occur. Although, adolescence, has traditionally been viewed as a time of prime health, researchers (Milstein, 1986; Hamburg and Takanishi, 1986) argue that, early adolescence is a time of particular vulnerability. Young adolescents experience biological, cognitive, and psychological changes that lead them to reevaluate themselves and their relationships to their families and communities. Studies show that such changes are accompanied by sexual activities, disengagement from school, and experimentation with drugs and alcohol. Adverse effect may be near-term or long-term. Near-term damages may include sexually transmitted diseases, or accidents related to substance abuse. Long-term effects include cancer, AIDS, and cardiovascular diseases (Hamburg & Takanishi, 1986). Since, research shows that early abstinence from such problem behaviors is a strong predictor of healthier life later on, preventive measures should be established within health systems as an aid for confronting health problems in early adolescence (Genest & Genest, 1987;

Kelly, Murphy, Sikkema, & Kalichman, 1993). Preventive and behavioral intervention program should be specifically designed to this group in order to reduce or eliminate cigarette smoking, alcohol abuse, and risky sexual practices. Behavioral research to date has contributed primarily to a descriptive understanding of psychological factors involved in risk-taking behavior and to the treatment of many health behavior problems, including cigarette smoking, substance abuse, and risky sexual behavior for exposure to human immunodeficiency virus (HIV) (Leigh & Stall, 1993).

Old Age and Health:

On the cognitive level, we have already discussed some characteristics of mental life in old age. Cognitive functions, especially in the area of memory for recent events, may suffer in this stage of development.

There is a tendency for neuroses and depressive disorders to become more prevalent with age. Many researchers have reported an increase in paranoid reactions in the elderly (Winefield And Peay,1981).

Dementia is also one of the major disorders among elderly. Dementia associated with irreversible brain dysfunctions affects judgment and emotional state as well as memory and intellectual process. It seems, however,, that emotional disorders in this stage are inevitable consequence



Fig. There is a tendency for neuroses, depressive disorders, and many other medical problems to become more prevalent in old age. Acceptance, and social support, provided by doctors, mental health specialists, and relatives can ease many of the emotional and mental suffering connected with aging.

of ageing, but may well be an indirect result of other factors such social isolation.

The concept of disengagement describes the average older person's gradual reduction in many activities. A number of studies have reported that many old people experience a great deal of social isolation. Yet, continuing growth can make this stage of life satisfying. Erikson describes the psychosocial challenges as being that of coming to an integrated acceptance of one's life and its meaning, with despair as the result of failure to achieve that.

One of the basic challenges in the old age is death and dying. People can prepare themselves for their own death. Reaching a stage of faith and acceptance can ease the process of dying for the elderly person and also the grief of those who are left. The doctor's role can be very helpful in arranging for death and in helping his patient's family and children to cope and adjust.

CONCLUSIONS

In our discussion of development, basic themes were stressed; first, that all developments in all areas overlap and influence each other; second, development in a particular area that takes place during one's life is influenced by earlier developments in this area.

Physical development was discussed throughout the life span with emphasis on its interaction with other areas of development. Physical change in life span is a potential source of new stimulation that integrates in social development, and cognition. With such emphasis in mind specific areas of physical development were discussed including motor skills, coordination, and the process of sexual maturation. Crises precipitated by sexual and physical growth were presented with emphasis on psycho-emotional aspects in the middle and old age.

Cognitive development is moving away from efforts to identify stages of development to the analysis of cognitive process. Adults show diverse patterns of cognitive development and functioning depending on other social emotional, and work experiences. Also, cognitive aspects in the adult years develop in new ways. Piaget's cognitive stages, self management across the adult years, and memory functioning in the later years of adulthood were cited as examples of cognitive development characteristics across the childhood, adolescent, middle age, and late adulthood stages.

Social development involves the changing nature of an individual's involvement with other individuals and with groups of people. We have discussed social development across life spans with emphasis on social relationships, social skills, social roles, social-role orientation, etc.

Finally, we discussed medical implications of development with emphasis on childhood, adolescence, and old age disorders. Challenges, prevention measures, and treatment issues related to development crises and health risk factors were also discussed.

SECTION FIVE

INDIVIDUAL DIFFERENCES AND PERSONALITY FACTORS

CHAPTER THIRTEEN

INTELLIGENCE

ITS CONCEPTS, DISTRIBUTION, AND DETERMINANTS

THE CONCEPT:

It was Sir Francis Galton who first conceived of the idea of measuring intelligence. Before his time the word "intelligence" had been used to mean "information" (Serebriakoff & Langer, 1977). Since then many definitions of intelligence have been offered, and there is little agreement among scholars about them.

Among the many definitions of intelligence, the definitions offered by Binet, Weschler, and Piaget seem to have something in common.

Binet, the pioneer of intelligence testing, was the first to define intelligence as the 'the capacity to make adaptations for the purpose of attaining a desired end; and the power of auto-criticism' (Vingoe, 1981).
Binet was the first to advise an intelligence test to determine the individual differences in intelligence based on his definition.

Weschler (1955), who designed the famous Weschler Bellevue Intelligence Scale, defined intelligence as ' the aggregate or global capacity of the individual to act

purposefully, to think rationally, and to deal effectively with the environment' (Vingoe, 1981).

Piaget, another famous psychologist known for his studies of cognitive development, argued that intelligence 'constitutes the state of equilibrium toward which tend all the successive adaptation of a sensorimotor and cognitive nature, as well as all assimilatory and accommodator interactions and between the organism and the environment' (Piaget, 1963).

Obviously, the three definitions imply an ability (or group of abilities) to adjust or adapt to the total environment, or to limited aspects of one's environment. More simply, intelligence is the process of using information for the individual's advantage including adaptation to his environment. Thus all cognitive aspects including reasoning, thinking, processing information, and the effective use of symbols and concepts all should be considered in describing intelligent behavior.

MEASURING INTELLIGENCE

Intelligence in this sense is measurable, and well designed intelligence tests have been offered by psychologists. The theory behind intelligence testing is that among the many differences between people, there is a very important one that concerns the general ability to deal with information and to solve problems. We find, therefore,

that what intelligent tests measure is the ability to find solutions to a number of different tests each of which is directed to examine a special kind of general ability, or use one test that investigates several abilities. Hence, intelligence tests usually include group of tests called a battery of tests. Examples of intelligence tests include arithmetic tests, which will be concerned with the ability to manipulate numbers; tests of the ability to use words well (verbal tests): performance tests which will require manipulating problems related to shapes and forms; and tests that will measure the ability to make rational decisions based on using logical deductions and/or good judgment (Mowbray et. al., 1979; Serebriakoff & Langer, 1977; Weinman, 1981; Winefield & Peay, 1980).

MAJOR INTELLIGENCE TESTS

THE BINET TEST AND THE CONCEPT OF MENTAL AGE:

The first standardized intelligence test was pioneered in 1905 by the French psychologist Alfred Binet who aimed to determine a tool to help in screening academically retarded children to provide them with more training and special help. The Binet test consisted of a series of questions and tasks graded with reference to the ability of the average child to deal with them at successive age level. Binet's method consisted of testing different age groups of children and identified expected performance levels for any

particular age group. The average score for any group is used to calculate what is called mental age (MA). Thus the score of any child could be evaluated with reference to the performance of his/her chronological age (CA) group, and it was therefore possible to tell the extent to which a child's score fell above or below the norm of his same age group. For example, if a six year old child gets the same score as the average of the seven year group; then we say that he has a mental age of seven although he is only six.

The Binet test was later modified to give an estimate of mental age with respect to chronological age. This estimate was referred to as the intelligence quotient (I.Q.), and the method used to compute the I.Q. was to divide mental age by the chronological age, then multiply by 100 as follows:

$$\frac{MA}{CA} \times 100 = I.Q.$$

Using the above case as an example, the I.Q. for the six years old boy who has a mental age of seven is:

$$\frac{7}{6} \times 100 = 117$$

By the same token, a child of exactly 10 years of age whose mental age on the test is also 10 has an I.Q. of 100.

The I.Q. then is a measure of the relation between the mental age and the chronological age for any child, and the I.Q. 100 is the average score for any age level.

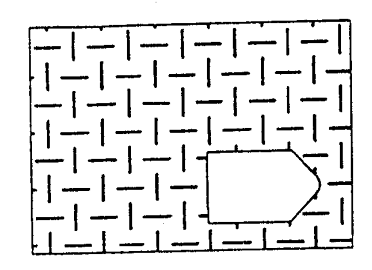
RAVEN'S PROGRESSIVE MATRICES:

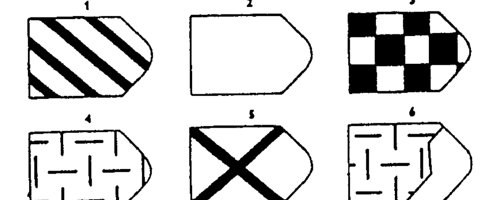
In 1957, Raven, defining intelligence as the capacity to acquire experience and the capacity to use it, designed the widely used **Progressive Matrices** intelligence test (Raven, 1957). In this test the subject is asked to select one of a number of designs which will complete a given pattern. The test consists of 60 items all of similar nature but becoming increasingly complex. The total correct answers for each subject is given a percentile rank that can be transferred into an I.Q.

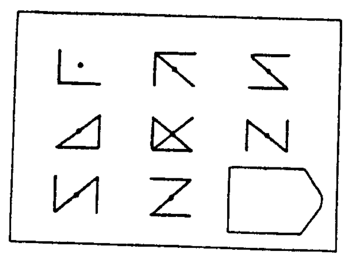
WESCHLER BELLEVUE INTELLIGENCE SCALES:

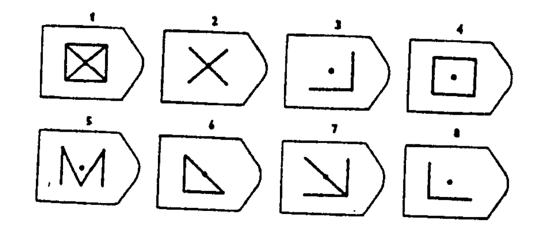
The most commonly used test at the present time is the Weschler Adult Intelligence Scale, or WAIS, by weschler (1958). It consists of 11 different subscales, six of which are of the question and answer type (**verbal scales**), and the remaining five are **performance** non-verbal scales in which the subject is presented with special material and is asked to manipulate it in some manner. Both verbal and performance scales require reasoning abilities in line with Weschler's thinking about intelligence as the purposeful and rational ability to deal with daily problems (Weschler, 1958).











A. An easy item

B. Difficult one

Fig. Two item samples from the Raven's Progressive Matrices; a widely known test for general intelligence. In this test the subject is asked to select one design that completes a given pattern.

The verbal tests from the WAIS were designed to assess the ability to understand and manipulate words and numbers, and consists of five scales labelled as: **Information** (general knowledge questions); **Comprehension** (Common sense questions to test how well the subject knows the general principles involved); **Arithmetic** (arithmetic problems to test the ability to deal with numbers); **Similarities** (paired words are presented and the subject is asked to state in what way both are similar); **Digit Span** (A series of numbers is read to the subject and he is asked to repeat them accurately. The test also asks the subject to repeat other series backward; and **Vocabulary** (a list of words arranged in order of difficulty is read and the subject is request to define each word).

Examples of performance subscales are; Picture **Completion** and Object Assembly tests. The Picture Completion presents a series of pictures from which some important part has been removed (e.g., a face with no nose). The missing part must be identified. In the Object Assembly, the subject is given a familiar figure or object (e.g., a figure of an elephant) cut up into pieces. The object must be identified and then the pieces should be put together accurately.

The scores obtained by a subject in all 11 scales are combined in order to arrive to his/her overall I.Q. Additionally, verbal and performance scores can be analyzed

separately to give a Verbal I.Q. and a Performance I.Q. thus allowing a range of valuable clinical information about intelligence than just relying on one single side of intelligence.

THE INTERPRETATION OF AN I.Q.:

Like many other human qualities, intelligence is "normally" distributed. Hence, if we give an intelligent scale to a large number of people, we will find normal distribution of scores. Usually, the distribution of scores will take the Gaussian or Bell curve form shown below:

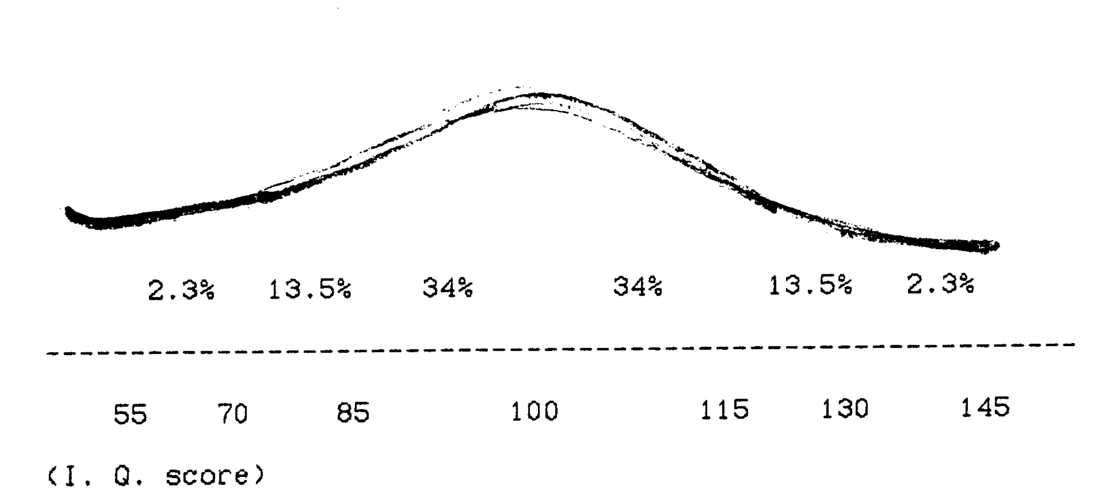


Fig. 18 The normal distribution of I.Q. scores

According to the above distribution, the mean I.Q. 100 is the exact midpoint, in the sense that half the population is at or below I.Q. 100 and half is at or above I.Q. 100.

Bearing this in mind, we can identify certain I.Q. levels, derived from splitting up the normal distribution curve into proportions on the basis of standard deviation. The following table shows such levels, percentage of population, and the designated labels:

TABLE 3

I.Q. Levels

I.Q. Level	Status	Per cent of population
Above 145	1	Gifted, Very Superior
130-145	2	Superior
115-130	12	Above Average
85-115	70	Average
70-85	12	Below Average, Dull
55-70	2	Mildly Retarded
Below 55	1	Severely Retarded

The terms used to describe I.Q. levels seem to be convenient labels, and carries some accuracy. A person with I.Q. 130 is in the top 3 percent of the population in terms of intelligence. At this level he/she would be academically successful. At the other end of the scale, a person with

I.Q. 55 or below is severely retarded, and would require special care in a mental retardation institution. Some 1 percent of the population would be below at or below this level.

ENVIRONMENTAL AND GENETIC DETERMINANTS OF INTELLIGENCE

Up to fairly recently it was almost agreeable among intelligence researchers that about 80% of intelligence is genetically determined, the remaining 20% is controlled by environmental factors. This conclusion is no longer accepted. We shall discuss in the following section the status of genetic and the environmental factors.

THE GENETIC VIEWPOINT:

The two major sources of evidence for the genetic view is based on twin studies and adoption design. Twins are of two types: fraternal (from two eggs) and identical (from one egg). Fraternal twins have the same relation as two brothers or two sisters; identical twins are, from a genetic view, very nearly identical. Adoption methodology focuses on studying genetically related individuals reared apart and genetically unrelated individuals reared together (Plomin, 1989). Studies of identical twins have shown very high correlations between their I.Q.s. Moreover, these correlations are generally found to be consistently higher

than those for fraternal twins (Weinman, 1980). After reviewing dozens of studies related to behavioral genetics in intelligence, Plomin (1989) concludes that it is difficult to escape the conclusion that heredity importantly influences individual differences in IQ scores.

It was argued, however, by environmentalists that identical twins share a very similar environment more than non-identical twins causing them to be more similar.

TABLE 4

Fifty two Genetic studies

(Source: Erlenmeyer-Kimling & Javik)

Group	Reared Apart	Reared Together
Correlation	Correlation	
Unrelated persons	-0.01	0.23
Foster parents & their children	--	0.20
Parents and their children		0.50
Brothers and sisters	0.4	0.49
Fraternal twins		0.53
Identical twins	0.75	0.87

The solution to this controversy was to investigate identical twin who were brought up separately. Sir Cyril Burt was the first to use separated twins as means of answering this question. Burt's studies and other researchers appear to provide quite convincing evidence that one-egg twins reared apart resemble one another in intelligence more than two-egg twins reared together.

Evidence of fifty two genetic studies from many countries, spanned over half a century of time, is summarized in Table 4 from Erlenmeyer-kimling and Javik (1963).

The most significant result in this table is that completely unrelated persons reared together show a very low intelligence resemblance (0.25), whereas twins, who have exactly the same genetic make up reared apart show avery high resemblance in I,Q. (0.75). It can be readily concluded, then, that genetic effect is a very strong one.

THE ENVIRONMENTAL INFLUENCE:

A more rigorous analysis of these studies does not rule out the environmental influence any how. Environmentalists argue that similarities between twins reared apart can be accounted for the fact that the very early environment has an extremely strong influence so that the similarity of the twins is established even before the separation.

Additionally, recent analysis of this data has shown that twins studies by Burt have been fabricated, even to the extent of inventing fictitious research assistants (Hearnshaw, 1979). It seems that Burt fabricated and created his own data to fit his conclusions about inheritance of intelligence.

The argument against twins studies sharply sheds doubt on genetic factors, and reduces the overall estimate of heredity to much less than the 80% which has been postulated for so long. The studies of the 1970s 1980s yielded lower estimates of heritability (about 50%) than the 70% reported in older studies (Loehlin, Willerman, & Horn, 1988).

The view that environmental influences should strongly be considered, is based on other topics of research. For example, patterns of child rearing appear to show class-related differences which can influence aspects of intellectual development. Children from middle class families consistently score higher on intelligence tests more than working class children.

Additionally, a number of studies have shown that, while there is no evidence of marked intelligence differences among infants of different social classes, children coming from disadvantaged groups (poor white and blacks) obtain lower test scores by the time they start school, and the relative deficit in performance of the disadvantaged child gets larger as he progresses through

school. In this sense, the early home environment can exert a strong influence on intelligence development and school achievement.

Factors such as the infants diet and injury or disease during pregnancy may affect the fetus environment can also exert strong influence on later intellectual development.

Expectations held by others, especially by teachers, are also likely to affect I.Q. performance. Rosenthal and Jacobson (1968) found that children would perform better if they were made to believe that they will do good during the year. Later studies showed that teachers and parents actually create different teaching environment toward those children whom they believe to have high potential to learn including showing more interest, attention and showing more warmth toward such children (Rosenthal, 1973).

Weinman (1980) evaluates the overall evidence on the genetic-environment controversy by pointing to the fact that while there appears to be some genetic factors, significant environmental influences can also operate. Indeed, it may well be impossible and irrelevant to try and assign the exact relative contribution of each.

This view receives approval from a recent article by Angoff (1988) in which he argues that the debate over whether intelligence is largely genetically or largely environmentally determined is actually irrelevant in the context of group differences. According to Angoff the real

issue is whether intelligence can be changed, and if so, how, and under what conditions. The disagreements between the environmentalists and the naturalists would become less severe if we know that many inherited characteristics are changeable, and conversely, many environmentally acquired characteristics are extremely resistant to change. For example, the Ministry of Health and Welfare in Japan reported that between 1946 and 1982 the average height (a trait with extremely high heritability origin) of young adult males increased remarkably by about four inches. Other environmentally determined characteristics such as smoking, drinking, violence, religious prejudice, and son forth are extremely resistant to change. As for intelligence, the well known California Guidance Study carried out by Honzik, Macfarlane, and Allen (Angoff, 1988) designed to raise IQ generally showed that large number of children, about 96 percent showed increases ranging from 15 to 20 or more points. This study also revealed that home conditions characterized by parental care, affection, and concern with achievement were likely to produce higher levels of ability and achievement in their children. In the following section, factors and conditions used to raise IQ will be discussed.



Fig. . There is a strong evidence indicating that raising children in an intellectually stimulating home or educational environment would increase intelligence by approximately impressive 20-25 I.Q.

RAISING INTELLECTUAL ABILITIES

There is strong evidence that if remarkable environmental changes are pursued early enough then significant increase in the I.Q. is gained. In one study (Weinman, 1980) a gain of 32 points was achieved as a result of raising some children in a an intellectually stimulating home environment.

The following social influence and training factors have been found beneficial in affecting I.Q. by approximately impressive 20-25 I.Q. points:

1. Sensori-motor stimulation during early childhood. Such stimulation can be created by colorful and interesting toys.

2. Linguistic stimulation during the early years is strongly related to later I.Q. Linguistic stimulation can be achieved by story-telling, books, and encouragement to express feelings. Therefore, the presence of adults or older children who provide learning experience to stimulate language can be extremely useful.

3. Encouragement of learning values and learning concerns including expressing parental interest and approval for achievement, reinforcement of positive academical interests, encouragement to explore the outside world, treating school performance as important, and rewarding learning interests.

4. Helping children to build positive images about themselves and their performance. We have just discussed how far do expectations held by others, especially teachers, affect intellectual development. Therefore, substantial improvement should be expected if we lead children to believe that they are intellectually blooming and by encouraging their involvement in performing certain tasks successfully.

5. There are also indications that slightly later intervention can be successful if it is structured appropriately. For example, the provision of intensive individual tutoring in basic problem-solving and specific educational skills has been found to produce effective I.Q. and academical gains.

In brief, social influence, early training and compensatory intervention can be effective if it is developed early in life and applied intensively.

CLINICAL-MEDICAL APPLICATIONS:

The measurement of intelligence lead to broad areas of clinical applications. We shall discuss some of these in the following section.

In the area of pediatrics, for example, intelligence testing is considered a valuable part of the assessment needed to examine children's intellectual and psychological level of development for his/her age. A number of

developmental intelligence scales have been designed for this purpose. For example, the Terman-Merill revisions of the Binet Scale are frequently used. In Addition, the Weschler Intelligence Scale for Children (WISC), and the Raven's Colored Progressive Matrices have been modified and standardized for use with children.

Another broad area of application relates to evaluating and diagnosing mental retardation. As we have seen earlier, the interest in intelligence developed from concern with problems set by individuals who were lacking normal intellectual development. Mental retardation is not a specific disease but refers to a group of mentally handicapped persons who are defined on the basis of their intellectual, behavioral, and social capacity. In the most severe form of mental retardation the individual is unable to feed, dress or look after themselves. A moderate grade of retardation would result in patients who again are incapable of managing their lives, although they may be taught simple tasks and may learn to dress and feed themselves. Mildly retarded may get some slight benefits from formal education, but they can carry out routine domestic duties. The intellectually dull refers to those whose intelligence is just below average. They may benefit from education at the lowest level or ordinary schools although they experience difficulties in more complicated tasks. Intelligence tests are used to determine whether an individual falls into

mental retardation category (IQ 70 or below) and furthermore to determine the extent of handicap.

Additional area of clinical value relates to planning and assessing the effects of treatment. For example, the routine use of an I.Q. test with school children experiencing certain difficulties, can confirm if such difficulties relate to lower intelligence or other factors. If the test rules out this explanation, planning for treatment can be pursued on a more learned basis. Additionally, repeated use of an intelligence test can help in evaluating the effects of certain types of treatment (e.g. new drug) on cognitive functioning or whether this treatment is producing the benefits for which it is designed. Depending on clinical impressions alone can be misleading and, therefore, objective IQ tests are necessary to determine the exact changes in the intellectual functioning following the application of certain treatments.

SUMMARY

Intelligence is the process of using information and all cognitive aspects for the individual's advantage including adaptation to his environment.

Intelligence is measurable, and well designed intelligence tests have been offered by psychologists.

The first standardized intelligence test was pioneered by Alfred Binet; known, now, as the Stanford-Binet

Intelligence Scale. The Binet test was the first to use the concept of mental age, i.e., the average performance score for any certain age group. The Binet Test gives an estimate of mental age with respect of chronological age, and this estimate is referred to as Intelligence Quotient (I.Q.).

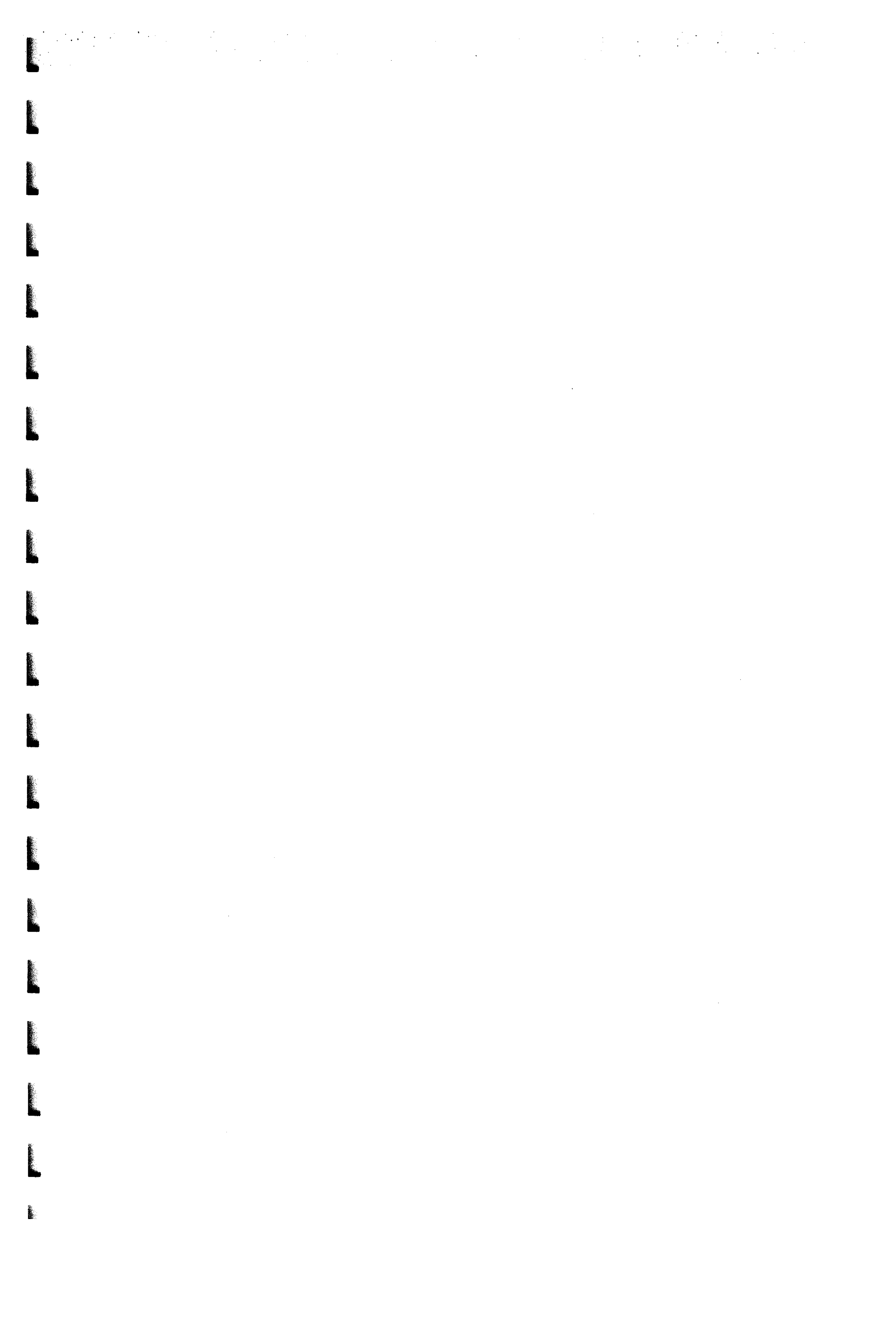
Another commonly used tests are the Wechsler Bellevue Scales by David Wechsler. It consists of 11 subscales, six of which are verbal, and the remaining five are performance. Verbal and performance can be analyzed separately to give a verbal I.Q., and performance I.Q.

Intelligence takes normal distribution, i.e., Bell curve distribution.

Although, it was thought in the past that intelligence is basically genetic, this conclusion is no longer accepted.

Recent studies showed that environmental influences should strongly be considered.

The current trend of thinking regarding the genetic-environment controversy is that whether intelligence can be changed, and if so, how, and under what conditions. Evidence is provided in this chapter that intelligence can be improved if remarkable environmental changes are pursued. Areas of clinical and medical implications are presented.



CHAPTER FOURTEEN

PERSONALITY AND TEMPERAMENTAL DIFFERENCES

PERSONALITY

In the same situation, say hospitalization, we can see a great variations of behavior displayed among persons in the amount of depression, anger, irritability, patience, dependency or independency. Certain situations, of course, lead to similar responses. A higher proportion of individuals will be irritated at a hospital than a casual socializing situation with friends. However, the same person observed in other situations may be found to behave in a similar, unique and consistent way again. This who was highly irritable in the hospital is also irritable at a school, a party or a casual socializing with friends. Everyone of us is irritable at times, but if someone is irritable when things are well, then we may conclude that this quality of irritability is somehow central to the individual's personality and not just reaction to the situation. What are these consistent patterns that give an individual his or her uniqueness, how they interact with each other into a unique and coherent pattern of behavior, and how they change over time constitutes the study of personality.

we will review in the following the major factors of consistency in human behavior. Our review will concentrate on biological, learning, and socio-cultural factors designed for the study and development of personality.

PERSONALITY DEVELOPMENT

PSYCHOANALYTICAL BASIS:

Psychoanalytic theory pioneered by Sigmund Freud, a Viennese Physician and Psychiatrist, has inspired much of the research into the biological effects on personality development. The psychoanalytic theory of personality is perhaps the most widely known of all modern theories of personality.

As a medical doctor, Freud had been trained in physiology. His orientation toward explaining human behavior was to identify biological drives that arise from tissue tensions within the individual (Wrightsman & Sanford, 1975). The influence of bodily processes on personality is very clearly shown in the way that Freud believed personality originates and changes with increasing age. In that sense, his theory is the most biological of all personality theories.

The Freudian theorists assume that certain inborn motives drive the human organism and determine the direction that behavior will take. Reactions to these motives lay the groundwork for the emergence of personality characteristics that will continue into adulthood. The energy expended in satisfying these motives is a psychological or psychic energy, called Libido. This can be thought of as analogous to physical energy in that we have only a certain amount at any given time; therefore, the more that is devoted to one

activity, the less there is available for another.

According to Freud, as children grow older they go through predictable and clear-cut stages of personality development.The stages are centered around the parts of the body. The first stage is the oral stage; the mouth is the center of the infant's universe, for it is used to ingest food and to express displeasure. Thus, the infant's libido is directed toward the satisfaction of its oral needs (sucking, swallowing, then biting). If these oral needs are satisfied, the child can shift his or her psychic energy toward a concern appropriate for the next stage; if they are not fully satisfied, fixation occurs. (This can result from improper weaning, an unsatisfactory feeding schedule, oral overindulgence, fears and anxieties, or other reasons.) In fixation a certain amount of psychic energy remains devoted to the satisfying of one need even though the child has moved on to a later stage of development.

If fixation has occurred, the adult's personality and behavior reflect the continued lack of satisfaction of this need. For example, if fixation occurred at the oral stage, a person might be very talkative or chew gum constantly or smoke. He might seek out an occupation that permits him to talk excessively; he might become a salesman or a teacher. Thus, Freud related personality development to biological factors while recognizing that the environment would influence the degree of satisfaction and fixation.

The anal stage is the second stage in Freud's theory of

personality development.It refers to the anus and elimination of waste products. For example, a 2-year-old or 3-year-old child, going through the self-discipline of toilet training, becomes concerned with learning self-control. Therefor, the child rearing practices of the parents can lead either to fixation or to a shifting of the child's libidinal energy to other concerns(Newman & Newman, 1984). Three bipolar traits consistently result from an excess of anal erotism: miserliness-overgenerousity, stubborness-acquiescence, and orderliness-sloppiness (Ewen, 1984).

The third stage of development, the phallic stage, usually occurs between 3 to 5 years of age. ("Phallic" refers to the male sex organ, the phallus.) At this time, interest in one's genital organs comes into prominence. Masturbation and other kinds of self-stimulation may occur. The child may develop feelings of jealousy toward the parent of the same sex and feelings of affection for the parent of the opposite sex. Freud called this the Oedipus complex, after Oedipus, the mythical king of Thebes who killed his father and married his mother. According to psychoanalytic theory, attitudes toward the opposite sex and toward people in authority are largely influenced by the

A somewhat different phenomenon occurs in the development of sexual orientations in females. This state, called Electra complex, generates a shift in attraction to the father. However, later in childhood the girl once again develops a feminine identification with her mother in a way

that Freud does not specify very clearly.

After a latency period between approximately ages 5 and 12, the person moves into the genital stage. The adolescent becomes attracted to members of the opposite sex; concern is directed toward the biological aim of reproduction rather than the earlier goal of reduction of tissue needs. Only the person who achieves the genital stage can become a realistic, well-socialized adult.

In discussing the structure of personality Freud could not escape the conviction that in every personality there is an area of untamed, animal-like motivation. This area of primitiveness he termed the id. The id, then, consists of pure, unadultrated, instinctual energy and exists completely on the unconscious level. The id demands immediate gratification of bodily needs and is said to be governed by the pleasure principle (Hergenhahn, 1984).

Later on, the individual internalizes the inhibiting, and the moral external controls; until they become his or her own. This system of controls Freud called the superego, a construct that he defined as the moral principle, the conscience, operating in personality (Freud, 1966; 1969).

The third basic construct that seemed necessary to Freud to account for the behavior he saw is that of the ego. Freud saw the ego as something of an intelligent administrator concerned with finding ways in which the system can maintain an integral survival in the face of the conflicting demands of the id and the superego and in the face of an environment

that has an irrefutable reality about it.

The opportunity for the ego to develop is rooted in both hereditary factors and the particular experiences of the child. In Freud's view, personality is largely formed by the end of the fifth year, and later growth consists mainly of elaborating the structure (Hall & Lindzey, 1970). Most other personality theorists disagree with Freud over the termination point for personality formation; they see it as extended over a much longer time.

LEARNING BASIS:

The behaviorism and reinforcement theory, with their emphasis on learning, see personality and behavior as the same. The stimulus-response and reinforcement theorists have also applied their concepts to an analysis of personality development. Dollard and Miller, who applied the principles of learning to an analysis of personality development, contend that the pattern of specific reinforcements that children receive for their various behaviors is the most important determinant of personality. Behavior, they believe, is learned. Personality, as reflected in behavior, is learned.

At birth the child is capable of only a few undifferentiated responses to specific stimuli. However, there is also an initial hierarchy of responses, an innate mechanism that controls the order of responses to a specific situation. The development of personality can be thought of

as a series of learning processes. Personality develops as a result of a series of external reinforcement; a behavior is learned because the individual has been rewarded by somebody for doing it. Particular responses are rewarded and hence recur; other responses are not rewarded and hence disappear.

The major lesson from the learning theory is clear: control reinforcement contingencies, and you control personality development and change in personality behavior. Skinner's theory of operant conditioning is specially important in child rearing, since the parents have at least the potential for controlling the reinforcement contingencies governing their child's behavior. According to the Skinnerians, it is never a question of whether children's lives should be controlled or not, since they always are controlled. It is simply a matter of who or what is going to do the controlling (Hergenhahn, 1984).

Imitation also serves as a useful way of explaining the development of personality. Bandura and Walters (1963) demonstrate that such personality traits as dependence and aggression are learned through watching others receive for their actions.

LEARNING-BIOLOGICAL BASIS:

Eysenck, on the other hand, developed a combined learning-biological theory. According to Eysenck individual differences in personality can be primarily accounted for by three unrelated dimensions which he has called extroversion-

introversion, neuroticism and psychoticism. The extroversion-introversion dimension refers to the sociability and degree of caution shown in behavior. Extroverts are outgoing and impulsive while introverts are more withdrawn and cautious. Eysenck postulates that these differences arise from the balance between excitatory and inhibitory processes in the central nervous system. He suggests that extroverts are characterized by a nervous system which is slower to respond and is more weakly aroused by stimuli than that of introverts. The extrovert's nervous system generates neural inhibition more quickly, while introvert's nervous system is more active and generates neural excitation quicker. Introverts, therefore, are more "stimulus seeking," and can be conditioned more easily than extroverts.

Neuroticism indicates the extent to which people tend to worry or respond neurotically and this is held to be related to introversion and harsh learning leading to extreme emotional activation.

SOCIOCULTURAL BASIS:

The sociocultural approach, highlights the vast influences of the culture, that is, the customs, rules, laws, and expectations of the society in which the person develops. Personality characteristics such as the authoritarian personality (Adorno et. al. 1950), dogmatic personality (Rokeach, 1960), the Machiavellian personality (Christie & Geis, 1970), and containment-exclusiveness (Ibrahim, 1976,

1980)) are seen as developing as a result of broad aspects of sociocultural factors.

Among the theorists of personality, John Whiting and Irwin I. child (1953) have placed the most emphasis on cultural contributions to personality development. They emphasize the similarities across societies by hypothesizing that socialization always involves the changing of the infant's behavior patterns into those accepted in adulthood. In all societies, they say, infants exist in a period of indulgence, in which they are allowed to behave naturally. Then, at some point in their lives, but a different point in different societies, they are forced to modify their behavior in the direction of accepted adult norm. In each society the procedures for socialization are differnt; they may be brief or extended, harsh or gentle, rewarding or punishing.

Since parents are administrators of the child's direct rewards and punishments, it is to be expected that the <u>family</u> has a highly significant hand in determining what behaviors will be learned and what general stance each individual will take in coping with life.

There is a large and growing literature showing the ways in which parental behavior and the atmosphere in the home affect children's personalities. Some of these effects may be direct results of reinforcement schedules, as the S-R theorists have shown us. Children may be either rewarded or punished for outgoing and friendly behavior, for example. If they are encouraged to approach people and expect warmth from

them, outgoing behavior will be stamped in. If friendliness is punished, it may disappear, with social hesitancy taking its place.

<u>PERSONALITY STRUCTURE</u>

The psychometric approach is primarily concerned with the way personality is organized. It assumes that personality is built around a set of basic personality <u>traits</u> and often uses the statistical technique known as <u>factor analysis</u> to identify them. In factor analysis, a hundred or more subjects are given a number of tests, or their behavior is observed in a number of different situations. Correlations are then calculated between each test and all other tests. The tests that cluster together are called factors. Within each group of tests, say for example tests of intelligence, the tests are highly correlated with one another, but not with other tests. One such study (Cattell, 1957), using data from a wide variety of test results and ratings of actual behavior, yielded a list of 16 basic personality traits. There is an implicit assumption in the psychometric approach that traits develop as a result of childhood experiences. Only some trait theorists propose that we inherit a tendency to develop certain traits. It is more likely that a trait emerges as a result of a constellation of experiences; a particular adult, for example, may be very introverted because he had been ridiculed when around other people as a

child and had been rejected by his parents.

MEASURING PERSONALITY

There are two necessary psychometric characteristics for a personality test to be accepted formally: validity and reliability. Reliability refers to consistency of the information provided by the test. For a test to be relable, information must be sought about how consistently the test will yield results. A test cannot be considered reliable, if it gives discrepant scores each time used on the same individual(s).

The validity of the test, on the other hand, means that the results of the test should conform or match with reality. For example, a test devised to measure anxiety can be accepted as valid if patients diagnosed as neurotics score highly on it. A test of anxiety cannot be considered valid, if normal students, for example, score equal or higher than neurotic patients. The validity of the test should usually be estimated against a criterion external to the test.

Personality tests are generally divided into two major types; personality inventories and projective tests. Personality inventories include many questionnaires about personal characteristics. Projective tests, on the other hand, include ambiguous and unstructured stimuli; inkblots, pictures, or incomplete sentences. The persons are asked to interpret or comment on them. The person will, presumably,

1. Do you like plenty of excitement and bustle around you? Yes No

2. Have you often got a restless feeling that you want something but do not know what? . . . . Yes No

3. Do you nearly always have a "ready answer" when people talk to you? . . . . Yes No

4. Do you sometimes feel happy, sometimes sad, without any real reason? . . . . Yes No

5. Do you usually stay in the background at parties and "get-togethers"? . . . . Yes No

6. As a child did you always do as you were told immediately and without grumbling? . . . . Yes No

Fig. Some items taken the Eysenck Personality Questionnaire. A widely cited as an objective personality inventory that yields scores on three personality dimensions; neuroticism, extroversion-introversion, and psychoticism which are believed by Eysenck to represent the three main differentiators of personality.

'project' aspects of his or her feelings onto such ambiguous stimuli, thereby allowing us to brobe more deeply into his or her personality.

Probably the most famous and widely used personality inventory in medical settings is the Minnesota Multiphasic Personality Inventory, or MMPI (Hathaway and McKinley, 1951). The MMPI consists of over 500 true-false questions. The questions are divided into susbcales tapping several personality constructs including social introversion, masculinity-femininity, depression, hysteria, schizophrenia, paranoia, and psychopathic deviation. MMPI items have also been used to create new scales measuring more specific personality characteristics relevant to medical arena such as anxiety, alcoholism, cancer proneness and somatic disorders. The MMPI findings are usually used, along with other information, in diagnosing specific psychiatric disturbances that might account for psychopathology in personality.

Another widely used inventory is the Eysenck Personality Questionnaire, or EPQ. The EPQ is a much brifer inventory and taps individual differences in three personality dimensions; neuroticism, extroversion-introversion and psychoticism which are believed by Eysenck to represent the three main differentiators of personality.

The Rorschach Test is the most famous and most often used projective test. Developed by the German psychiatrist Herman Rorschach, the Rorschach Test consists of 10 inkblot cards. These are presented with the instructions to say what

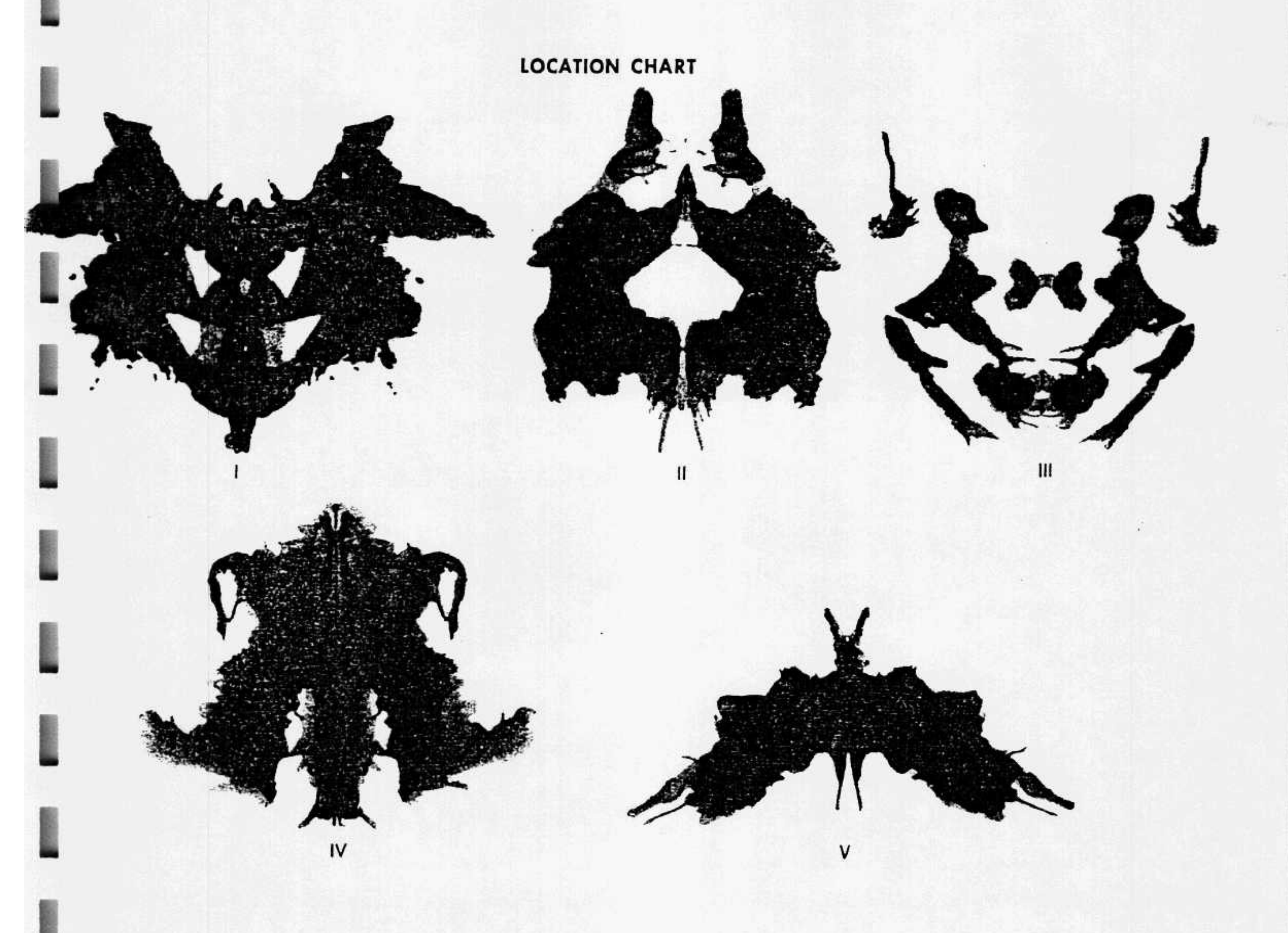


Fig. The Rorschach Test requires you to look at ambiguous inkblot stimuli (above), and then report on what you see in each stimulus. Your responses are analysed in various ways and are assumed to reflect your own feelings, perceptions, and conflicts.

they might represent. The responses are analysed in various ways and are assumed to reflect deeper personality needs, feelings, and conflicts. Because there is no agreed way to interpret any particular set of responses on the Rorschach Test, it has been widely criticized as a formal assessment personality technique.

Another projective technique is the Thematic Apperception Test or TAT. The TAT consists of twenty pictures of people with ambiguous expressions in ambiguous situations. The person is asked to make up stories about each picture. The stories are then analysed for indications of certain personality needs, values, and attitudes including anxieties, conflicts, fears, and motives. The TAT is open to the same kinds of crticisms as the Rorschach. There are no objectively established criteria for interpreting overall personality structure from the TAT, and its reliability and validity have not been consistently demonstrated (Crider et al, 1983).

PERSONALITY AND HEALTH ISSUES

Studies of the frequently ill persons show that they share many personlity traits. It is found that they may simply not take care of themselves; that is, they do not eat, sleep, or exercise sensibly.

Specifically, more recent research in health has been developed within the framework of personality. For example the personality of the patient can play an important role in

the area of pain perception. Highly anxious individuals have lower pain threshold which means that pain among anxious individuals tends to be felt earlier than normals. Also, it was reported by Eysenck and his followers that introverts are found to feel pain sooner than extroverts.

Personality has also been found to play a major role in specific diseases formation. We have discussed the Type A personality, and we cited evidence that Type A personality has an association with proneness to coronary heart diseases. More recent research has showon that Type A people show a greater rise in systolic blood pressure in response to physical and psychological demands (Rosenman, 1979).

Response to medications and treatment regiments can be linked to personality factors. More specifically, there is evidence that there are individual temperamental differences in response to drugs affecting the central nervous system. Introverts, for example, show greater tolerance of sedatives, while extroverts are found to be much more sensitive to these drugs (Claridge, 1972).

Personality differences has also been shown to play a role in the effectiveness of doctor-patient communication. Relevant here is the study of locus of control in personality. Locus of control refers to an individual's belief that he or she either dominates the immediate environmental situation or is dominated by it. Persons who believe that they are dominated by 'luck', 'fate' or circumstances are said to have "external" personality. Those

who think that they have control over what happens to them are considered "internals." Internals were found to have more objective knowledge about their diseases conditions and more actively seek information. Externals, on the other hand, are more likely to seek medical and psychiatric help than internals. Externals, also, show best adjustment and their doctors can make them less anxious by giving them just general information prior to surgery. Internals, in contrast, can be made least anxious only if given more elaborate and more specific information. Internal patients with tuberculosis in a hospital made more effort to find out about their disease, and then actually tried to do something. The external patients sought less information and took fewer steps to deal with their illness (Cider et. al, 1983).

Psychiatrically speaking, because internally oriented persons see the environment as under their control, they were more optimistic and less depressed than externally oriented persons. They work harder and by and large are better adjusted. Sometimes, however, they blame themselves too much (Phares, 1976).

CHAPTER FIFTEEN

DYSFUNCTIONS OF HUMAN BEHAVIOR

SECTION SIX

DYSFUNCTIONS OF HUMAN BEHAVIOR AND THEIR TREATMENT

CHAPTER FIFTEEN
DYSFUNCTIONS OF HUMAN BEHAVIOR

THREE CRITERIA SIGNALLING ABNORMALITY:

There are many different criteria for defining abnormality (see for example, Kendall & Norton-Ford, 1982). One workable definition relies on three criteria, any of which could signal abnormality.

(1) Continuous suffering from discomfort. Such feelings of discomfort are usually found in people who are nearly always anxious, depressed, or irritable.

(2) Bizarre behavior such as the constant misinterpretation of what is happening, or markedly different from others, like, for example, the doctor who refuses to go to work for the fear of being attacked.

(3) Inefficiency and remarkable inadequacy in performing life-roles; for example, a physician may be unable to detect signs of pathology in his/her patients' records and charts.

In spite of the differences in defining abnormality, we feel that these three criteria --discomfort, bizarre behavior, inefficiency --works fine for our purpose from this chapter.

CLASSIFICATION OF ABNORMAL BEHAVIOR

There are four major types of abnormal behavior: neurotic, psychotic, personality disorders, and developmental disabilities.

NEUROTIC DISORDERS

The term neurosis has been around for almost two centuries (Knoff, 1975), although its wide-spread usage can be traced to Kraeplin who used the concept to classify a large number of specific disorders, including phobias, hysteria and obsessive-compulsive neurosis. Neurosis can be defined as a disorder characterized by high levels of anxiety and a pattern of self defeating behavior. Neurotics are generally capable of getting well in society and rarely need to be hospitalized, though they are generally miserable and can easily be victimized by their own irrational fears and anxieties. However, the concept is too broad and is used in diverse ways. The several types of neurotic behavior are classified in the recent literature as: 1) anxiety disorders, 2) somatoform disorders, 3) dissociative disorders, and 4) depressive neurosis. This following section describes the symptoms associated with each of these four types.

ANXIETY DISORDERS:

As explained earlier, a person suffering from anxiety experiences intense, disturbing emotional states that seems to come from nowhere. The following forms of anxiety can be identified:

Generalized Anxiety Disorders:

One who suffers from generalized anxiety has a wide range of physical and psychological symptoms that include; high level of muscular tension (shakiness, trembling), high level of activity of the autonomic nervous system (sweetening, dizziness), apprehensive expectations (worry, anticipation of misfortune), and vigilance and scanning disorders (distractibility, insomnia, and irritability).

Panic Disorder:

The person with a panic disorder is afflicted with frequent attacks of anxiety. A severe anxiety attack is a sudden overwhelming feeling of terror. It is frightening experience with numerous effects. Some of the typical symptoms are heart palpitations, dizziness, choking, breathlessness, chest pains, and fainting (Wender and klein, 1981). Between such panic attacks, the person usually is restless, sleeps poorly, and have poor eating habits. They may also complain from strange physical symptoms with no

apparent organic cause such as trembling, or tingling of the arms or legs.

Phobias:

The person with **phobic disorder** suffers from disabling fears of certain objects or events. The fear in the phobia (unlike generalized anxiety) has a specific source such as certain animals, darkness, open space, closed space, etc. Generally, however, phobic objects have potential for real harm. people do not develop fear of neutral objects like toys, chairs, or grass. Still though, the phobic reaction is extreme, irrational, and unreasonable. The patient realizes intellectually that his/her fear is unreasonable, and irrational, but this does not reduce the anxiety.

Phobias come in different forms and from different sources. However, there are three types of phobia: **simple phobia, agoraphobia,** and **social phobia.**

A simple phobia centers on simple objects such as cats, dogs, snakes, elevators, etc. Facing such simple objects can cause severe anxiety and panic attack. However, avoiding such objects usually does not impair the person's social functioning.

Agoraphobia refers to the fear of leaving a familiar environment. The word "agoraphobia" literally means a fear of open space. Agoraphobic patients become anxious when they travel from home or mix with crowds. The fear in agoraphobia



Fig. Phobia is defined as an irrational and disabling fear of certain objects or events. It comes in different forms and from different sources. The more common form of phobia is the fears from certain animals such as cats, birds, and dogs.

is basically based on being away from the secure and safe closed home environment.

Social phobia is characterized by feelings of anxiety in social situations. Patients with social phobias feel anxious and avoid social situations and places such as restaurants, parties, public transportations, or places where they may have to interact with other people or they may have to speak in public. The symptoms that develop in these situations are those of any anxiety neurosis, although blushing, trembling, and nausea are particularly common (Gelder, Gath, & Mayou, 1984).

Obsessions and Compulsions:

An obsession refers to a persistent preoccupation with some type of urge or thought. Three themes are most common:

1. Thoughts of harming oneself or others.
2. Thoughts pertaining to contamination.
3. Repetitive doubting.

A compulsion is a ritualized behavior that the person must repeatedly act out. It appears meaningless, but actually reduces the person's anxiety level. Compulsive behavior tends to be very stereotypic and ritualistic. Examples of common compulsions are stepping on every crack on the sidewalk, counting trees, counting street lamps, dressing in exactly the same sequence every day. A relative



Fig. Agoraphobia refers to feelings of fear of open spaces, It is basically based on being away from the secure and safe closed home environment.

frequent compulsion is to keep moving objects around until they are in "perfect" order. Gambling is seen as a compulsive act.

SOMATOFORM DISORDERS:

The major feature of the Somatoform Disorders is the presence of physical symptoms which have no apparent physical cause. The DSM-III-R (1987) identifies four types of Somatoform Disorders:

1. **Somatization Disorder:** Somatization Disorder involve recurrent, multiple somatic complaints for which no organic disorder can be identified. Complaints include headaches, insomnia, nausea, fainting, and in many cases menstrual and sexual problems.

2. **Conversion Disorder:** This disorder involves physical impairment, motor or sensory, which has no organic cause. Common motor symptoms include tics, paralysis and convulsions. Sensori symptoms include loss of vision or hearing. The individual with a Conversion Disorder displays an indifferent attitude toward the impairment (termed as La Belle Indifference). Conversion Disorders are distinguishable from Factitious Disorders in which the individual has voluntary control of his symptoms.



Drawing by Kevin Chadwick

Fig. . : The compulsive behavior is one of the major neurotic disorders. It refers to those ritualized and meaningless behaviors that a person must repeatedly perform to reduce his/her anxiety.

3. **Hypochondriasis** (or hypochondriacal neurosis): This disorder involves preoccupation with the fear of having a serious disease without apparent physical reason that can account for the complaint.

4. **Somatoform Pain Disorder**: The person with Somatoform Pain Disorder shows preoccupation with pain for at least six months. Appropriate evaluation uncovers no organic pathology.

DISSOCIATIVE DISORDERS:

The term **dissociative**, also, known as **dissociative hysteria** refers to the fact that we can disconnect or dissociate certain painful from our conscious memory. We all have things to forget, and we manage to make some disappear. The major difference is the extent of dissociation. The person who develops a true dissociative disorder is quite immature, has a tendency to forget unpleasant events, and usually has a history of avoiding responsibility. The three major dissociative disorders are **amnesia**, **multiple personality**, and **fugue**.

Amnesia:

Amnesia refers to psychogenic (psychologically caused) forgetting of memories related to terrible stress. Amnesia can be caused by high fever or blow to the head. A common type of psychogenic amnesia is a soldier's loss of memory

for events that occurred during battle. In this case and in similar cases selective forgetting is involved.
Only traumatic portion of the memory (overwhelming terror and guilt) disappears. Episodes can last from several hours to several months.

Multiple Personality:

The person who suffers from multiple personality disorder suffers from the same amnesic symptoms with one exception: Instead of forgetting specific events or groups of people, such individuals forget portions of themselves, which then starts living an independent existence. Multiple personality symptoms, then, involve the alteration between two or more distinct personalities with varying awareness of other personalities. Multiple personality frequently appears in movies and television shows. Stevenson's **Dr. Jekyll** and **Mr. Hyde** is the literary fictional model of this type of severe dissociation. More recently, famous Multiple Personality types include **Eve White** (Cleckley, 1954), and **Sybil** (Schreiber, 1973) who had 16 different personalities.

Fugue:

Individuals with psychogenic fugue not only forget their identity and related events/people, but also flee from their life situation. During fugue, a person may leave his usual residence and way of life for a journey which has no

immediate connection with his former activity. Such cases occur not infrequently under stress (Abse, 1974).

DEPRESSIVE NEUROSIS:

The depressive neurosis (or **dysthymic disorder**) involves moderate non psychotic affect disorder marked by depression. It afflicts roughly 25 percent of all people treated for mental disturbance. The classical symptoms of dysthymia are: lack of energy, low self-esteem, hopelessness, unhappiness, sadness, and pessimism (DSM-III-R, 1987; Beck, 1967). All of us can be exposed to these feelings when we lose a loved object. What differentiates between normal feelings of sadness and dysthymia depends on the cause, severity, and duration of the symptoms. If our sadness or mourning after losing a beloved one goes too long, too far, and becomes too severe, it should, then, be considered as maladaptive. Other major types of depression will be discussed under psychotic affective disorders in the next section.

PSYCHOTIC DISORDERS

Psychosis involves major disorganization of thought processes, emotional response, and perception of self and the world. To psychotic individuals, the world seems strangely different from what the rest of us know. The general picture of psychosis is the loss of contact with and

difficulty recognizing reality. The three major symptoms of psychosis are:

(1) Thought disorder marked with serious distortion of cognitive processes. Holding grossly inaccurate beliefs (termed as delusions) is a good example for the psychotic thought disorder.

(2) Perceptual distortions including "hearing voices" or "seeing things" that are not heard or seen by others (hallucinations).

(3) Inappropriate and gross emotional reactions (termed as emotional instability). Psychotics may react in exaggerated fashion, show no response at all, or respond irrelevantly, for example, a bit of sad news may bring laughter.

Unlike neurotics, psychotics rarely see themselves as ill or that they need treatment for their inappropriate and out of the ordinary behavior.

The psychoses are themselves divided into organic and functional psychoses. In the organic psychoses there is demonstrable organic abnormality in the brain, such as brain tumors, injuries, or degenerations. An example of such organic types, is the Korsakov psychosis which is used for loss of recent memory (amnesia) and alcoholism. In functional psychoses, no underlying physical causes has yet

been demonstrated. The most two common types of functional psychoses are major affective disorders and schizophrenic disorders.

MAJOR AFFECTIVE DISORDERS:

Compared to dysthymic disorder, major affective disorders are far more severe and disabling. There are two basic affective disorders: major depression, and bipolar disorders.

Major Depression:

Compared to neurotic depression, major depression is far more severe and disabling. However, symptoms of psychotic depression, are similar to those of neurotic depression or dysthymia, as explained earlier, only much more severe. In extreme cases, the individual may be unable to feed or dress self or take care of other personal needs. The most serious consequence associated with major depression is suicide and the likelihood of suicide attempts increases with increased age.

Additional difference between dysthymia and major depression is that the later disorder is accompanied by distorted thinking. In other words, persons diagnosed as having major depression hold grossly unrealistic beliefs (delusions), are unable to correctly interpret the environment, and severely confused (McMahoun & McMahoun, 1986; Nelson & Charney, 1981).

Bipolar Disorder:

Bipolar disorders (or manic-depressive psychoses) come in three types: **bipolar mixed**, in which the mood swings back and forth within a given episode (laughing and crying, for example): **bipolar manic**,where the current mood is one of agitation, euphoria, rapid speech, flight of ideas, frantic activity, and so forth; and **bipolar depressed**, where the mood is severe depression. Bipolar depression is distinguishable from major unipolar depression (Beigel & Murphy, 1981). Unipolar depression is characterized by anxiety, agitation, somatic complaints, and an onset in the early 40s. Bipolar depression is characterized by detachment, preoccupation, little or no interaction or communication with others, and onset in the early 30s.

Onset of bipolar episodes is generally prior to age 30 and the first episode is usually manic.

SCHIZOPHRENIC DISORDERS:

The word **schizophrenia** means "split personality," but technically the meaning is far from such type of dissociative hysteria. Schizophrenia is the most common psychosis, and the term actually involves a number of symptoms that represent either a temporary or chronic loss of contact with reality which may be severe enough to disable the person leading to hospitalization. The incidence of schizophrenia shows a remarkable level of consistency at

approximately one per 100 of the population (Tilleard-Cole, & Marks, 1975). Schizophrenia represents approximately 50% of the population in mental hospitals.

Symptoms of schizophrenia include primary and secondary symptoms. Primary symptoms are normally associated with:

1. **Associative disturbances:** These symptoms include wandering, vagueness, and interruption in the flow of thinking and/or speech.

2. **Affective disturbances:** Affect (emotional reactions) is inappropriate, sometimes shallow and flat.

3. **Ambivalence:** Schizophrenics frequently experience conflicting emotions at the same time (e.g., love and hate).

Secondary symptoms are as follows:

1. **Delusional thinking:** Delusions refer to strongly held beliefs that are wrong and bizarre. Some common delusions associated with schizophrenia are: delusions of persecution (e.g., certain people are after him/her), grandiose (e.g., thinking of oneself as an angel or a prophet), and influence (e.g., his thought are controlled by messages broadcasted).

2. **Hallucinations:** Hallucinations are among the most prevalent perceptual disorders in schizophrenia. Auditory hallucinations are the most common type.

3. **Motor symptoms:** Schizophrenics may engage in stereotyped or bizarre postures and gestures.

4. **Withdrawal:** Schizophrenics tend to withdraw from personal relationships and other aspects of the external world and, instead, become preoccupied with personal fantasies.

Not every schizophrenic case will, of course, be presented by all of the above symptoms, but two or three will probably appear in any given case. For the diagnosis of schizophrenia, the DSM-III-R requires at least one of the main three symptoms of: delusions, hallucinations, or thought disorder. In addition, active symptoms should be present for at least six months. Also, symptoms must interfere with normal personal, social or occupational life.

Schizophrenia expresses itself in different forms. The three major types include: Disorganized (Hebephrenic), Catatonic, and Paranoid.

The **Disorganized Type** is marked by incoherent, and silly emotional responses. The person shows odd mannerism, and reports odd and disorganized delusions. He/she becomes increasingly self-centered, and withdraws from all but close family contacts.

The **Catatonic Type** shows notable motor disturbance , especially rigidly held postures. Catatonia is also marked by vivid hallucinations, and grandiose delusions, as well as alternations of stupor and excitement. In the stupor state, the catatonic may remain rigidly immobile and unresponsive for extended periods of time.

Paranoid Schizophrenia, on the other hand, is characterized by delusions of grandeur or persecution. More aggressive paranoid types show some personality disorganization, and become more hostile toward others.

PERSONALITY DISORDERS

Individuals with personality disorders do not fit into the categories of neurotic or psychotic disorders. They don't appear mentally impaired to be considered psychotics, nor do they seem to be oversensitive as is the case with neurotics. However, their behavior, as we will see, can not be considered "normal" by any means. They display behavioral patterns that are considered antisocial and which violate the basic morals and values of their society. Therefore, criminals, drug addicts, delinquents, prostitutes, and sex criminals are all considered instances of personality disorders. In other words, this general group embraces a wide area in which the individual indulges in aberrant behavior which causes suffering either to himself or to society (Tillard-Cole & Marks, 1975).

ANTISOCIAL DISORDERS:

Although there are many types of personality disorders, one in particular is seen as serious and ~~can be~~ is labeled as antisocial disorder. The antisocial persons were originally called **psychopaths**, that is to say asocial or antisocial

behavior without manifestations of guilt or conscience. Both antisocial and psychopathic behavior are of course closely related to criminality (Eysenck, 1978). Other behavioral characteristics related to antisocial disorders are explained by the DSM III-R (1987) as follows:

1. Conduct disorders with onset before age 15 such as a history of fighting, cruelty, running away, using weapons, lying, etc.

2. A pattern of irresponsible and antisocial behavior since the age of 15, including irritability and aggression, repeated absence from work, failure to plan ahead, failure to conform to laws and social norms, repeated lying, lack of ability to function as a responsible parent, reckless behavior (e.g., driving while intoxicated), and lack of guilt or remorse when hurting or mistreating somebody.

Given the fact that such personality disorder is manifested by violation of acceptable social norms, the lack of conscience is considered central to describe this disorder.

DEVELOPMENTAL DISABILITIES

Developmental disability, widely known as mental retardation, is not a specific disease, but characterized by lack of intelligence and inability to live without special care. The mentally retarded is unable to handle tasks

appropriate to his/her age. Mental retardation is usually present at birth, and has a number of causes, not all of which have been identified. Retardation is classified according to I.Q. as follows:

Borderline Mental Retardation:

I.Q. ranges from 68-83; slow learners and most fail to complete high school.

Mild Mental Retardation:

This group has I.Q. ranging from 52-67. This group is quite varied depending on how high their I.Qs are within this classification. At best individuals in this category can get some slight benefit from formal education. However, persons at the lower level require some supervision and lack the intellectual equipment to handle their affairs in any adequate fashion.

Moderate Mental Retardation:

This type results in patients who are incapable of managing their own affair. People's I.Q. in this group ranges from 36-51. Many of them have serious physical problems, and almost all of them show poor coordination. Some of them can live at home with supervision; but others may require institutionalization. They can not benefit from formal schooling, but they can be taught to dress, feed, and toilet train themselves. When grown, many can read and

write, but will only have the vocabulary and comprehension of a four to seven years old child.

Severe Mental Retardation:

I.Q. 20-35. Most persons in this group cannot learn to feed, dress, or develop toilet training skills independently. Such patients require constant supervision.

Profound Mental Retardation:

The I.Q. for this group is 19 or below. This is the smallest group--about 1 percent of retarded. These people rarely develop beyond the mental age of two years. They cannot look after themselves, and require the maximum care and supervision in institutions. The mortality rate in this group is very high due to severe illnesses developed among them.

UNDERSTANDING ABNORMALITY

We shall examine three main sources of mental and emotional disorders--constitution, childhood experiences, and social learning.

The proof for inheritance comes from comparing identical twins with normal population in terms of emotional and mental disorders. Identical twins results from the division of one fertilized egg, and should therefore be genetically identical. If it is found that twins are more alike in some respect than ordinary siblings, this suggests that the

condition is to some extent inherited. Although the main conclusion in such regard is that mental disorders, specially schizophrenia, are inherited to some extent, environmental factors are also important. At best, genes may contribute to the development of mental disorders only in conjunction with life difficulties and critical childhood experiences.

Psychotic disturbances are suggested to be caused by a second possible physiological factor--imbalance of certain body chemicals. For example certain drugs, like mescaline and amphetamine produce a wide range of psychotic reactions including hallucinations and perceptual distortions. Since such reactions are common in schizophrenia, it is suggested that chemical agents play a role in schizophrenia. Research in that area is quite promising. Chemical substances such as serotonin have been found in abnormally high quantities in the blood of psychotic patients. However, a causal relationship between chemical agents and psychotic behavior has not been established yet. It may be suggested that emotional stress in psychotics would account for the presence of the chemicals, just as the stress in normal persons accounts for the high levels of adrenaline.

Case studies of mentally and emotionally disturbed persons and comparisons of patients with normals revealed faulty childhood rearing practices by the parents in the patient groups. As we have shown in a previous chapter, many

child rearing practices such as too much punishment, double bind communication, perfectionist parental demands can lay the foundations for later emotional instability, including depression, neurotic behavior, and schizophrenia. Neuroses are more affected by childhood experiences than psychoses.

Social and environmental stresses can also bear a strong influence on the development of abnormality. Specifically, poverty, wars, concentration camps, poor schooling, job problems, social isolation, and prejudice and discrimination all seem to contribute to emotional and mental disorders.

A good example of the social stress theory is found in the studies of learned helplessness in depression.

Depression is one of the most widespread emotional problems, and it is undoubtedly has many causes. The major factor, however, is described by Seligman (1972) as learned helplessness. Learned helplessness explains to us what would happen if a person appraised a threatening situation as hopeless.

Learned helplessness has been demonstrated in the lab with animals tested in a shuttle box. If placed in one side of a divided box, dogs will quickly learn to leap to the other side of the box to escape an electric shock. If they are given a warning before the shock occurs, most dogs will learn to avoid the shock by leaping the barrier before the shock arrives. This is true of most dogs, but not those who have learned to feel helpless. The dogs were made helpless

by placing them harnesses from which they could not escape during applying several painful electric shocks. When placed in the shuttle box, those dogs reacted to the first shock by crouching, howling, and whining. None tried to escape. They helplessly resigned themselves to their fate--after all. They had already learned that there was nothing they could do about the shock.

Seligman (1974) described that this is the case with depressed humans, too. He described a similar reaction in a Vietnam prisoner of war camps. Seligman reported the case of a young marine who had adapted usually well to the stresses of being a prisoner of war. His health was apparently related to a promise made by his captors that if he would cooperate he would be released on a certain date. As the date approached, his spirits soared. Then came a severe blow. He had been deceived. There was never any intention to release him. He immediately lapsed into a deep depression, refused to eat or drink, and died shortly after. The deception was not an electric shock, but certainly psychologically fatal. Seligman research, however, gave some clues about how to unlearn and cure learned helplessness. With dogs the cure was creating HOPE, by forcibly drag them away from the shock into the safe compartment. After this is done several times, the animals regained hope and feelings of controlling of their destiny.

SUMMARY

As we shall use the term here, abnormality can be signalled by any of 3 criteria, that is: continuous suffering from discomfort, bizarre behavior, and inefficient life-roles performance.

There are 4 major types of abnormal behavior: Neurotic, psychotic, personality disorders, and developmental disabilities.

Neurotic disorders include anxiety disorders (phobias, panic disorders, obsessive-compulsive, etc.,) somatoform disorders, dissociative disorders, and depressive neurosis. All neurotic disorders are characterized by high levels of anxiety, self defeating behaviors, and irrational fears.

Psychosis involves major disorganization of thought processes, and loss of contact with and difficulty recognizing reality. Psychosis is distinguished by 3 major symptoms: thought disorders (e.g. delusional thinking), perceptual distortion (e.g., hallucinations), and inappropriate and gross emotional reactions.

Psychosis is divided into two types: organic psychosis (with demonstrable organic abnormality in the brain), and **functional psychosis**. The most two common types of functional psychosis are major affective disorders (major or psychotic depression, and bipolar disorders), and schizophrenia.

Schizophrenia is the most common psychosis, and conceptually consists of a number of symptoms that represent either a temporary or chronic loss of contact with reality. In severe cases, schizophrenia may lead to hospitalization in a mental health institution.

Schizophrenia expresses itself in three major types; disorganized, catatonic, and paranoid types.

Individuals with personality disorders display behavioral patterns that are considered antisocial, and/or causing suffering either to the person himself or to others. The antisocial personality disordered was originally called psychopath.

Developmental disability, widely known as mental retardation, is characterized by poor intelligence, and inability to handle tasks appropriate to his/her age. Mentally retarded, therefore, may not be able to live without special care.

There are three main sources of abnormal behavior: constitutional factors (including inheritance, and chemical imbalance), faulty childhood rearing experiences, and social and environmental stresses.

A good example of the social stress causal relationship with abnormality was represented by Seligman's studies of learned helplessness, which explains to us that depression may develop experimentally if a person appraised a threatening situation as hopeless.

CHAPTER SIXTEEN

PSYCHOLOGICAL TREATMENTS OF PSYCHIATRIC AND BEHAVIORAL DYSFUNCTIONS

CHAPTER SIXTEEN

PSYCHOLOGICAL TREATMENTS OF PSYCHIATRIC AND BEHAVIORAL DYSFUNCTIONS

Psychotherapy, broadly conceived, is a type of direct interaction with people to help them solve psychological and psycho-physiological problems and to develop healthier living. The psychotherapist is usually a specialist professional such as a clinical psychologist, psychiatrist, or psychiatric social worker.

When therapists conduct therapy, they apply principles that are derived from psychological theory, research, and clinical experience. As may be expected, there are as many variations in psychotherapy as there are in the psychological theories. One researcher (Small, 1971) listed over seventy methods that qualify as psychotherapy. However, we will consider in the following the basic forms of psychotherapy.

BASIC METHODS OF PSYCHOTHERAPY

SUPPORTIVE PSYCHOTHERAPY:

In its simplest form, supportive psychotherapy aims at the direct relief of symptoms and strengthening of the patient's defenses against psychological disorders. It has a special relevance to general medicine and family practice. It is considered as one of the basic tools of the family

physician who is called upon to maintain long term relationship with many patients.

Technically, supportive psychotherapy aims at investigating the current difficulties and helping the patient to cope with the problems of life both in the present and in the future. Since supportive psychotherapy is a derivative of analytic oriented therapy, we shall know more details about its characteristics and techniques in the following section about psychoanalysis.

PSYCHOANALYSIS:

Probably, psychoanalysis is the first of the three major models of psychological treatments: the second being behavior therapy, and the third being humanistic approaches. Theoretically speaking, psychoanalysis, known also as the psychodynamic treatment, follows the theoretical model of treatment as pioneered by the Austrian psychiatrist Sigmund Freud and the neo-Freudians including Jung, Adler, Rank, Sullivan, Horney, etc.

The major contributions of psychoanalysis to psychotherapy theory include the following: (1) An individual's mental life can be understood. (2) Human behavior is often governed by unconscious forces. (3) Early childhood developments has profound effect on later adult personality. (4) Gaining insight into the unconscious factors (i.e., awareness of the origin of one's problems) can be applied and will alleviate suffering from various

types of psychological disorders (Corey, 1977; Strupp, 1986).

The central technique in psychoanalytic treatment is **free association**. Procedurally, the person in psychoanalysis is instructed to flow with any feelings or thoughts by reporting them immediately. The person typically lies on the couch while the analyst sits behind him or her so as not to distract the client during the free association. Later, the analyst interprets the material, and guides the patient toward increased insight into the underlying dynamics that the person had been unaware of.

Dream analysis is another important techniques for uncovering the unconscious forces. Indeed, Freud saw dreams as the "royal road to the unconscious," for in dreams the unconscious wishes, and fears are expressed. The analyst might guide the person to some aspects of the dream for the purpose of uncovering the unconscious connotations.

The pivot concept upon which psychoanalysis turns is the **transference**. Essentially, transference refers to the tendency to transfer to the analyst strong feelings that at one time the patient experienced toward his or her parents. The analysis of transference allows the person to achieve the insight into the nature of his previous relationships, and it provides an understanding of the influence of the past as it relates to present functioning (Strupp, 1971).

In spite of the wide interest in psychoanalysis since its inception, psychoanalytic therapy has come under severe criticism. Mainly, it is seen as not supported by scientifically acceptable procedures. A discussion of the criticisms which are frequently made of psychoanalysis are beyond the scope of this book. (The reader interested to know about such criticisms will find more elaborated discussions of this subject in Eysenck, 1952; Fonagy & Moran, 1990; Hall & Lindzey, 1970; and Vingoe, 1981).

THE HUMANISTIC-EXISTENTIAL THERAPIES:

The Client-Centered Therapy:

Carl Rogers (1974) developed client-centered therapy as a reaction against what he considered the basic limitations of psychoanalysis. Thus, he has hoped that his theory would not be viewed as dogma or set of techniques but as a way of being and as a shared journey in which both therapist and client reveal their humanness and participate in a growth experience. The client experiences psychotherapeutic growth in and through the relationship with the therapist who helps the client do what the client cannot do alone. The goal of client-centered therapy is to facilitate growth of the self through an atmosphere which releases the natural potentiality for psychological growth.

According to client-centered therapy techniques of psychotherapy place more emphasis on the constructive

therapeutic relationship, and not what the therapist says, believes or does (Rogers, 1987; Sanford, 1987). The basic client-centered therapy techniques, then, are focused on creating psychological conditions which are both necessary and sufficient to result in positive changes. The good therapist, then, is the one who expresses and communicates acceptance and unconditional positive regard of the client.

Apart from individual therapy, this approach has been applied in group therapy, effective medical interviewing, training of teachers, executive, and health workers. More extensive applications, criticisms , and benefits of this approach can be found elsewhere (e.g., Fischer & Fischer, 1986; Rogers, 1987; Vingoe, 1981).

The Gestalt Therapy:

Frederick Perls was the authority who was most closely identified with the development of the Gestalt therapy. He proposed that the relationship of the individual to his or her environment is centered on the promotion of the individual's growth and achieving his or her human potential (Polster, 1987). One's capacity for growth can only be realized by encouraging our awareness of the present, and to attack anything that threatens to divert awareness from the now. Obviously, gestalt therapists base their orientation on present experience and on the immediate awareness of emotion and action (Kendall & Norton-Ford, 1982).

The basic notions of gestalt therapy were based on the gestalt principles of perception. Like the gestalt psychologists, the gestalt therapy views the person as an organized whole, not as a disjointed collection of emotions, cognition, and behaviors (Phares, 1979). Also, one of the gestalt principles is "closure" that is the tendency to perceive figures as complete when they are actually incomplete. Capturing the implication of this principle for psychotherapy, Perls assumed that when an experience is incomplete it demands the attention of the person. Psychotherapy will help persons to return to such important unfinished themes to achieve integration. Complete integration includes closure of unfinished business which implies therapy.

Aside from Perls genius to devise the gestalt therapy methodology, it should be indicated that gestalt therapists do not agree among themselves, and at times they express through their therapy practices their own sense of uniqueness and their personal interpretation of life. However, gestalt therapy permits us to firmly plant ourself in the reality of the present which can be for some patients at least, very valuable chanel for health.

BEHAVIOR THERAPY:

Behavior therapy is the most widespread psychological treatment which has been introduced in medical field in

recent years. In the next chapter, next chapter outlines some behavioral approaches to treatment of psychological dysfunctions and other medical problems such as pain control, hypertension, asthma, cardiovascular, etc.

OTHER FORMS OF PSYCHOTHERAPY

GROUP THERAPY:

Nearly every person with every conceivable psychological or social problem can participate in some type of group (Klein, 1986). There are many types of group therapy arising from many different traditions (e.g., psychoanalysis, Behavioral, Gestalt, Confrontation, Client-Centered, etc.) Although it is beyond our goal here to explain this broad range of group approaches, it is appropriate to indicate that goals of group therapy vary from reducing psychotic symptoms to reducing more specific behavioral problems such as weight, smoking, lack of assertiveness. The methods utilized include talk, drama, and sometimes music and physical exercises, with or without appointed leader. Procedurally, when a group psychological treatment is initiated, the specific goals of treatment should be carefully specified, and clients are to be carefully selected to meet such specific criteria.

COMMUNITY MENTAL HEALTH:

The evolution of community mental health services can be understood in light of the need to create services that can meet the patients' community adjustment (Gonzelas et. al., 1986). The community mental health movement advocates the view that a variety of mental health services be available in the community to serve the needs of the emotionally disturbed. Thus, it is based on the idea of preventing major emotional problems by dealing with them quickly and in the place where they arose. In 1963, the Community Mental Health Centers Act was passed in the U.S., allowing and comprehensive mental heath centers located in communities.

Community mental health centers provide nine essential services: (1) inpatients care; (2) outpatient care; (3) partial hospitalization (for example, the patient works during the day but returns to the hospital at night); (4) emergency services; (5) consultation services to a variety of professional, educational, and service personnel in the community; (6) diagnostic services; (7) rehabilitation services, (8) research in community patient care, and (9) providing training in appropriate mental health areas.

Clearly, the community mental health movement has changed the manner in which mental health services were conceived and delivered. Yet in the implementation of the above guidelines, the traditional diagnostic procedures and

the conventional forms of individual psychotherapies, still prevailing somehow. Even today, problems of poverty-level individuals, and other groups to whom such movement has been created, have not been properly resolved (Phares. 1979, Sue, 1977).

EFFECTIVE PSYCHOTHERAPY

Four decades ago, the British psychologist Hans Eysenck shocked the public opinion with a study about the efficacy of psychotherapy in general and psychoanalysis in particular. Clearly, he found out that a smaller percentage of psychotherapy patients than of control patients, those who had received no psychotherapy, showed improvement. Naturally, Eysenck's research results were met by heated discussion and criticisms from psychotherapy supporters. Now, however, the outlook for therapeutic interventions no longer seems as bleak as Eysenck once reported. The effective psychotherapy seems to be based on specific therapist, patient, and situational factors, regardless of theoretical or doctrinaire considerations (Phares, 1978). These factors will be discussed in the following section.

THE THERAPIST:

The importance of the therapist role in determining outcomes of treatment has been early recognized by early psychotherapists such as Freud, and Carl Rogers. In fact,

Freud recommended that analysts undergo periodic analyses so that they could learn to recognize and control those factors. Research in this area, has, however highlighted the following sets of variables that are considered desirable in good psychotherapists: (1) genuiness, i.e., the capacity of the therapist to be involved in the patient's problems. (2) Social adjustment with co-workers and colleagues. (3) Ability to show empathy, i.e., to transmit to the patient a sense of understanding and appreciation of their feelings. (3) Ability to show Warmth and unconditional positive regard to the client. (4) Therapists' values including the therapist positive attitudes toward mental health, his or her judgments about the patient's wishes, and impulses. (5) Credibility as seen by the patient.

Researchers have, also, studied variables such as experience, and congruence in therapist's and patient's sex and race, but these are not likely to be as relevant variables for effective therapists as the above (Kendall & Norton-Ford, 1982).

PATIENT'S FACTORS:

There is evidence that a large group of patients are unsuitable for psychotherapy because of variables such as poor intelligence, lack of motivation for active participation in traditional forms of psychotherapy, severity and chronicity of illness, poor ability to

verbalize feelings and thoughts, and the like (Strupp, 1971). Clearly, therapists would predict positive therapeutic outcomes with young, educated, motivated, and married individuals.

PROCESS OF THERAPY:

Another crucial determinant of therapy outcome, is the specific behavioral interactions between patient and therapist including the expectations, and the interpretations that both formulate about one another and their interactions. In general effective psychotherapeutic relationship has been found to lead to decreased patient's drop out, and positive short-term therapeutic gains. As therapy is effectively processes, patient becomes more open, alive, mature, and ready to share his or her personal experiences and relate to his therapist and others (Kendall & Norton-Ford, 1986; Phares, 1978; Strupp, 1971; Vingoe, 1981).

SUMMARY

The direct interaction with people to help them solve psychological problems and to develop healthier living conditions is called as psychotherapy. Psychotherapy in the field of clinical psychology applies principles derived from psychological research, theory, and practice.

Although there are many forms of psychotherapy, the four basic methods include: supportive psychotherapy, psychoanalysis, humanistic-existential therapies, and behavior therapy. The characteristic of each form and its uses have been outlined. These forms can be applied individually, in groups, and/or larger community mental health settings.

Regardless of the theoretical divisions in psychotherapy, research shoed that effective psychotherapy is based on specific factors related to the personality of the therapist (e.g., warmth, experience, credibility, etc.), characteristics of patients (e.g., age, severity of their illness..,) and situational factors such as the level of interaction in treatment sessions.

The implications of psychotherapy in health fields will be discussed in the next chapter.

CHAPTER SEVENTEEN

BEHAVIOR THERAPY AND MEDICINE

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BEHAVIOR THERAPY AND MEDICINE

The so-called behavior therapy is the most widespread psychological treatment which has been introduced in medical field in recent years. Psychologists have developed many effective methods for behavioral change. Not only have these methods played a role in improving the health of many people, but behavioral scientists are now respected and valuable members of the health care team in most advanced cultures because of their expertise in behavior change.

In this chapter we will outline some behavioral approaches to treatment. Many of these approaches have been designed specifically for the treatment of psychological dysfunctions, but some more recent approaches have been pioneered to include other medical problems such as pain, hypertension, asthma, cardiovascular, etc.

WHAT IS BEHAVIOR THERAPY?

Behavior therapy was originally defined as the application of learning principles to the treatment of maladaptive behavior (Kendall & Norton-Ford, 1982). According to this definition, behavior therapy's techniques develop from various learning paradigm: classical conditioning, operant conditioning, and social learning (see

learning theories elsewhere). However, recent behavior therapists like to view it as a variety of specific techniques developed from more wide perspective based on behavioral theories in social psychology, personality, and cognitive psychology (Bandura, 1977; Ellis, 1987; Freeman et al., 1990; Hawton et al., 1991; Lazarus, 1976; Wolpe, 1987).

The central theme of behavioral approaches is that all human behavior is acquired or learned by various conditioning processes and environmental practices. Psychological dysfunctions are seen, then, as a result of maladaptive learning experiences by association, reinforcement or modelling, as in any other behavior. Therapy will focus on pinpointing the patient's exact complaint, teach him/ her unlearn the undesired behavior, and help him or her to acquire more desired skills that lead to more effective living. In the following section, we present a sampling of some of the most widely used techniques in behavior therapy.

TECHNIQUES

CONDITIONING OF INCOMPATIBLE RESPONSES:

Treatment techniques in this category are based on Pavlov's classical conditioning theory which implies that when two emotional responses are incompatible, the stronger response inhibits the weaker one. The aim of therapy here is

to establish acceptable and adaptive responses to stimuli which previously evoked symptoms. The underlying principle involved is that of counter-conditioning which implies that acquisition of a new incompatible response will lead to the elimination of the old one.

The so-called systematic desensitization techniques of behavior therapy are based on the same principle. According to Wolpe (1973, 1987) who pioneered this method, desensitization is usually applied by teaching the client to gradually perform an opposite behavior as a substitute for the emotional problem. Wolpe and Lazarus have suggested several responses which are incompatible with anxiety and have developed a number of treatment techniques associated with this principle. Of the various behavioral responses considered antagonistic to anxiety, progressive muscular relaxation has been the most extensively employed and forms the basis of 'systematic desensitization' treatment of anxiety.

Procedurally, the patient is first taught to relax his muscles in a progressive way (legs, stomach, shoulders, face, etc). Teaching the client to relax usually requires about six interviews with home practice of two 15-minutes periods a day. Following this, the anxiety-producing stimuli, for example spiders, are arranged in a graded hierarchy. The client is instructed to relax deeply while

imagining the anxiety producing situations. The least anxiety-provoking item on the hierarchy is presented first to the relaxed client. Gradually, the more and more anxiety-producing stimuli are presented. Desensitization need not, of course, be presented by imagining. The therapist can use the same procedures in the client's actual environment. Exposure or 'in vivo' desensitization is the name given when clients engage in graduated exposure in the naturalistic environment.

The procedure has been successfully used in treating a variety of problem behavior connected with anxiety, including impotency in men and frigidity in women (Dempsey and Zimbardo, 1978).

Aversion therapy is based on the same Pavlovian principles of learning. The principle underlying aversion treatment is the creation of a conditioned aversion to the undesired habit. Early behavioral therapies for **alcoholism** used aversive techniques, whereby nausea-inducing drugs, electric shock were associated to the sight, smell and taste of alcohol. The general results of aversive counterconditionning have been encouraging, but they should be used cautiously and in combination with other techniques that encourage creating alternative strategies for coping with distressing situations underlying addiction or the maladaptive behavior.

FLOODING (IMPLOSIVE) THERAPY:

Stampfle and his colleagues have outlined the method of implosive therapy together with the theory behind it (Stampfl & Levis, 1967, 1968). Stampfle adopts the notion that neurotic symptoms are conditioned anxiety and avoidance responses arising originally from noxious stimuli. Treatment consists of having the patient imagine the feared situation as vividly as possible and experience all the emotion that this elicits. The Patient's anxiety is maintained at as high a level as possible. To maintain that, the therapist describes progressively more fearful scenes to be imagined. Individual sessions last for about 30 to 60 minutes, and are arranged so that they end at a time when anxiety goes down.

The following is an example from a therapy session with a snake phobic woman:

Close your eyes again. Picture the snake out in front of you, now make yourself pick it up. Reach down, pick it up, put it in your lap, feel it wiggling around in your lap, leave your hand on it. Put your hand out and feel it wiggling around. Kind of explore its body with your fingers and hand. You don't like to do it, make yourself do it. Make yourself do it. Really grab into the snake. Squeeze it a little bit, feel it. Feel it kind of start to wind around your hand. Let it. Leave your hand there, feel it touching

your hand and winding around it, curling around your wrist (Morris, 1975).

Although implosive therapy and systematic desensitization may seem opposite to each other, both involve exposure to anxiety evoking situations.

Implosive techniques have been found effective in treating variety of neurotic problems particularly those connected with specific phobias and compulsive rituals.

REINFORCEMENT TECHNIQUES:

Reinforcement procedure has its origin in Skinner' operant conditioning theory. Accordingly, maladaptive behavior can be modified by **negative reinforcement** of unwanted response (by ignoring it, for example), and **positive reinforcement** of desired behavior. Positive reinforcement can be done by attending to more adaptive and rational responses, rewarding them and praising them.

The most prominent feature of this approach is to focus on a specific symptom--the 'target behavior'--and the environmental events which follow or proceed the behavior, reinforce it and maintain it. The procedures involves the manipulation of reinforcements so that the target behavior is extinguished and replaced by more adaptive responses.

The operant methodology has been effectively adapted to treat several aspects of abnormal behavior. The maladaptive

and irrational behaviors of mentally retarded and psychotics were the first to benefit from this technique. Currently, the operant therapy has been applied to the study and treatment of a wider range of psychiatric disorders including, hallucinations, delusions, mutism, obesity, thought disorders, and many other disorders ranging from neurotic to organic mental disorders.

Token-economy is another major application of operant treatment. The token-economy system has been widely used in managing mental hospitals' wards, and other mental health institutions. Here, desired and rational behaviors of the patients such as hygiene, respect of others, good manners and responsiveness,are reinforced by tokens given to patients immediately after they perform the desired behavior. These token can be used later to obtain more concrete rewards or privileges.

Token economies have been used in a range of mental health settings, and have proved to be effective in building up independency, basic self-maintenance skills,and prosocial behavior in both psychotics and severely retarded children.

TRAINING OF SOCIAL SKILLS:

Training of social skills benefits from two major behavioral techniques: **modelling and assertion training.**

Modelling techniques, or observational learning, have been used to facilitate learning of effective social behavior. The procedure for modelling requires the exposure of a client to an individual who actually demonstrates the behaviors to be learned by the patient. There are two forms of model presentation. The first, involves the use of a real- life or live model who actually performs the behavior in the presence of the patient. The second consists of symbolic model in which the behavior is presented in the form of films, videotape, or audiotape. Models provide a source of information to the observer about the target behavior including what is it, how to do it, and when to do it. There is a body of experimental evidence which shows that a variety of social deficits among psychotics, mentally retarded, juvenile delinquents can be replaced by more effective and appropriate types of social behavior by exposure to the social performance of models. The list of social skills which can be learned via modeling therapy is large and contains skills such as language acquisition, class room behavior, interviewing skills, interaction with power figures, interaction with peers or spouses, etc.(Gutride, Goldstein & Hunter, 1973, 1974; Marlat & Perry, 1975).

Assertion training is specially useful in helping people reduce their fear of acting appropriately in social

situations. The condition for using such training can be summarized as follows: (1) inability to stand up for self in situations where patient feels that he/she has been treated unjustly, (2) difficulty in responding in own interests to those events which directly affect living, and (3) difficulty in expressing positive or negative feelings such as anger, love, admiration, or affection toward significant persons in life (Morris, 1975). Assertive training can be achieved by three techniques: role playing of a particular behavior until it is well performed; modelling and observing how a more assertive person (or the therapist) would behave in the same situation, and social reward and coaching by the therapist.To facilitate further improvement of assertiveness, the therapist comments about how good the patient is doing and progressing, and makes suggestions and gives feedback about the performed behavior (Wolpe & Lazarus, 1966).

BIOFEEDBACK:

The general paradigm for biofeedback involves the use of electronic instruments that continually monitor the physical responses of the patient and displays these responses back to the patient, and not only to the doctor. For example, a monitor can be attached to record and display the patient's heart rate, temperature,muscle tension, or blood pressure,

the patient can watch the display and gets feedback. The aim is to control certain problematic autonomic responses such physiological activities. Biofeedback have been used to treat several physical maladies including, headache tension, migraine, essential hypertension, and seizures.

COGNITIVE TECHNIQUES:

The cognitive therapy is based on the assumption that the person's thoughts or interpretations of certain situations are among the main sources of psychological dysfunctions. Cognitive techniques aim to modify the patient's feelings and behaviors by changing his/her thoughts about self or others. It is assumed that changing thought will produce positive changes in the behavior (Dryden & DiGiuseppe, 1990; Ellis & Dryden, 1987; Freeman, Pretzer, Fleming, & Simon, 1991; Hawton et al., 1991; Zarb, 1992) .

Albert Ellis's rational-emotive therapy (RET) is a very good example for this methodology. The central theme in the RET is that there are certain irrational beliefs, expectations, or assumptions according which certain people (neurotics, for example) tend to see themselves or tend to approach situations. It is the existence of irrational beliefs, in the form of irrational self-talk, that result in the emotional disorder experienced including anxiety or

depression. The following three ideas, are taken from a list of ten irrational ideas reported by Ellis:

__ The idea that it is a dire necessity for an adult human being to be loved or approved by virtually every significant other person in his community.

__ The idea that it is awful catastrophic when things are not the way one would very much like them to be.

__ The idea that one should be dependent on others and needs someone stronger than oneself on whom to rely (Ellis, 1962, 1987).

The RET therapist seeks to alter the patient's problematic behavior by actively disputing and attacking the person's irrational beliefs. Several research reported the effectiveness of RET in cases of anxiety, test anxiety, and depression. Indeed, similar cognitive techniques used by Beck and others found that cognitive therapy show positive results in dealing with depression and personality disorders (and modifying self defeating and despair inducing statements in depression is more effective than antidepressants (Beck, 1980; 1987; Beck, Freeman, & Associates, 1990; Beck & Rush, 199). Other studies found that RET is more superior than placebo control, and to a lesser degree superior to the relaxation training in cases

of social anxiety (Trexler & Karst, 1972: Kendall & Norton-Ford, 1982).

Recently, clinicians developed cognitive behavior therapy techniques to deal with medical problems such as patients with cancer (Anthony, 1991), to help them develop a "fighting spirit". Despite the encouraging results of these interventions, it should be stated that little is known about their impact on disease progression (Anthony, 1991).

BEHAVIORAL MANAGEMENT OF MEDICAL PROBLEMS

Although behavior therapy was considered primarily as concerned with the treatment of psychiatric problems (Eysenck, 1959), recent developments in the field have extended its application to medical problems which reflect the interaction between physical and psychological factors. The following section, examines the application of behavioral techniques in some of these disturbances:

HEADACHES:

The two most frequently diagnosed headaches are the tension headaches, and the vascular or migraine headaches. Behavioral approaches to the treatment of headaches involve teaching the patient a physiological response that is incompatible with the tensions of headaches. Biofeedback and progressive muscle-relaxation training have been shown to



Fig. One of the major techniques of behavior therapy used in treating headaches is to teach patients with tension headache to modify their irrational thoughts and images connected with instigating headaches including images of family and work fights.

have comparably high levels of success in assisting patients to achieve deep levels of muscle relaxation which is presumably have therapeutic influences on headaches (Matarazzo & Carmody, 1986; Melamed & Siegel, 1980). Cognitive strategies have been developed to treat tension headaches. Holrod & Andrasik (1978) have developed a cognitive treatment plan based on teaching patients with tension headaches to modify their maladaptive cognition presumably connected with instigating headaches. Considerable improvement occurred in headaches by teaching patients to monitor maladaptive thoughts and to use cognitive skills to manage potentially stressful situations previously associated with the occurrence of headaches. Since migraine headaches can be caused by a number of complex variables, it is suggested that no single treatment strategy is apt to be effective in the management of this disorder (Mitchell and White, 1977). Therefore, other treatment procedures concentrate on helping identifying the environmental events which precipitate headache episodes before the selection of treatment modality is decided.

INSOMNIA:

Insomnia sufferers should be evaluated carefully before treatment. This is because insomnia can be triggered by a variety of problems. For example, many insomniacs have

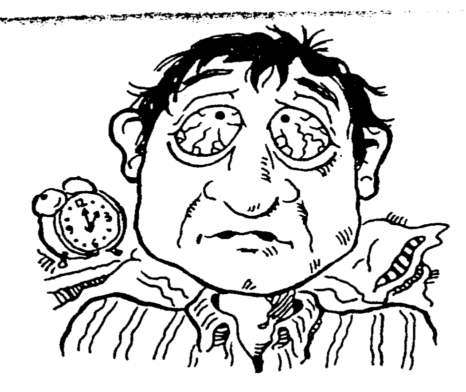


Fig. Insomnia sufferers should be evaluated carefully before planning for psychological treatment. As psychological factors are determined, behavioral therapies can be effective tool in reducing sleeping problems. Techniques such as relaxation, biofeedback, and cognitive restructuring are the commonly used in such regard.

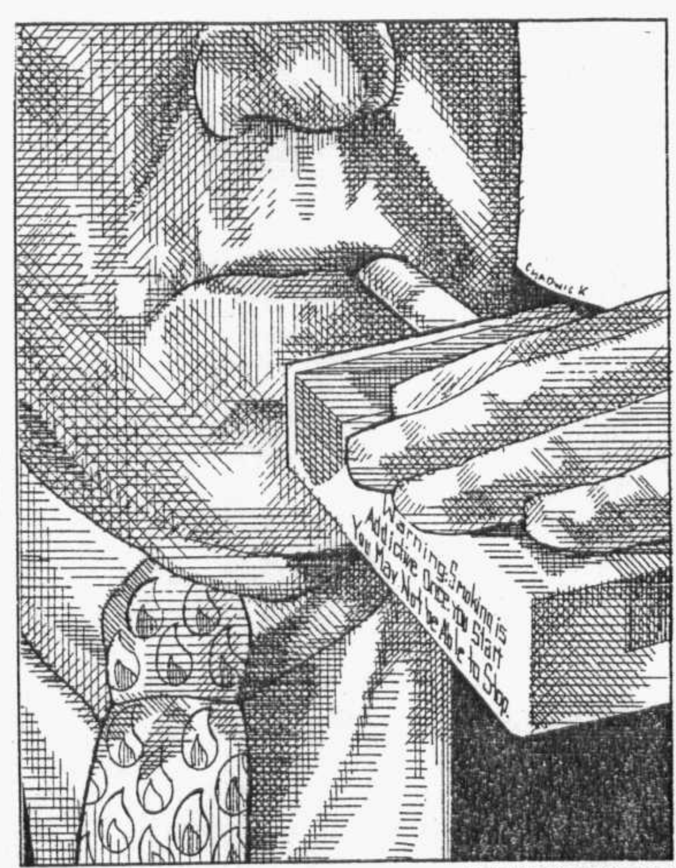
psychiatric disorders including depression and anxiety (Goodwin, 1986). Other factors such as over arousal, excessive concern about illness, irregular bed-time patterns have also been identified as cause of insomnia. Although the treatment of insomnia includes relaxation, biofeedback, and cognitive restructuring, it is important, then to thoroughly understand the nature of the individual's sleep problem before determining the direction or techniques of treatment (Benson, Beary, & Carol, 1974; Melamed & Siegel, 1980).

SEXUAL DYSFUNCTIONS:

Sexual dysfunctions involve two major types: erectile dysfunctions among males, and orgasmic dysfunctions among females. Sexual dysfunctions are usually seen as the result of wrong attitudes, anxiety, and/or lack of information. Therefore, Annon and Robinson (1978) suggest three strategies utilized in treatment:

1. Adequate information to reorient couples toward a more satisfying sexual life,

2. Skill training is necessary to achieve efficient control. In such regard two skills were suggested including the sensate focus exercise, and the squeeze exercise Masters & Johnson, 1970), and



Drawing by Kevin Chadwick

Fig. ... Many eminent health figures call smoking cigarettes an addiction. Behavioral therapies have, therefore, been active to seek successful preventional and treatment programs to control or reduce smoking.

all be sharply reduced if people stop smoking. Epidemiologic studies showed that peer pressure, and ambivalence toward authority were the most important factors related the onset of cigarette smoking among teenagers (Green, 1977; Matarazzo & Carmody, 1986). Therefore, one of the basic strategies in treating cigarette smoking is preventional. Preventional programs incorporate several techniques including videotaped presentations, peer modeling, and role playing ways of resisting social pressure to smoke. Treatment programs have also been developed. Lando (1977) developed a short term therapy program based on aversion, contractual management, and group support techniques. The results were so encouraging as almost 81 percent reduced their smoking habits.

AIDS EPIDEMIC:

The acquired immune deficiency syndrome (AIDS) has directly affected millions of people worldwide and indirectly, the fear of spreading this disease, affects virtually all of us. AIDS is the terminal stage of human immunodeficiency virus disease (HIV). It is common among health professionals, therefore, to use the terms AIDS and HIV as synonymous even though some HIV infected patients may remain healthy for many years before they develop AIDS (Kaplan, Sallis, & Patterson, 1993).

indirectly, the fear of spreading this disease, affects virtually all of us. AIDS is the terminal stage of human immunodeficiency virus disease (HIV). It is common among health professionals, therefore, to use the terms AIDS and HIV as synonymous even though some HIV infected patients may remain healthy for many years before they develop AIDS (Kaplan, Sallis, & Patterson, 1993).

Most factors that are responsible for transmitting of HIV are behavioral in nature, and include unsafe sexual practices (e.g. homosexuality), sharing intravenous needles, and patterns of using alcohol and recreational drugs in conjunction with sexual activity (Kelly et al., 1993; Lee & Stall, 1993).

In addition to medical treatment for HIV (which is still limited), behavioral sciences' role in understanding of psychological factors related to high risk behaviors, emotional problems among the infected, treatment, and prevention measures all can be of great value.

Behavioral therapy techniques can be used to deal with depression, anxiety, and lower self-esteem which have been found common among the AIDS infected groups. The use of behavioral techniques were found helpful to encourage active help seeking, mobilize energies to deal directly with the illness, reduce mood disturbance, and increase self-esteem (Kaplan, Sallis, & Patterson, 1993; Nicholson & Long, 1990).

Social learning approaches can contribute many change factors. Hoffman (1991) has also noted that the availability of social support groups may be the single most important effective way for treating HIV-infected individuals. Support groups in such cases provide emotional and informational support, as well as means to see how others are coping with the same problem. They also offer members a chance to socialize and to foster a network of support that is especially important for the person who has lost social support (loss of existing relationships are commonly expressed by infected persons).

Since there is currently no cure for AIDS, prevention is certainly the best approach to AIDS epidemic. The most currently pioneered prevention measures are promising (Kelly & Murphy, 1992). AIDS epidemic prevention approaches can be summarized as follows:

1. Cognitive-behavioral Skills Training that teach and encourage people to modify high-risk behavior practices connected with HIV.

2. Social norm change models including population- or community -based interventions that encourage building social or peer norms concerning the acceptability of safer sex practices.

3. Wide-scale educational campaigns that combine mass media, workshops, and direct education means to mobilize

community. Such campaigns should target risk groups, promote behavior change, and provide information about AIDS infection transmission and other specifics.

Taken together, confronting AIDS epidemic must consider all rules of behavior therapy, change and prevention measures. In such regard it may be beneficial to cite the theme advocated by the American National Research Council (Kaplan, Sallis, & Patterson, 1993). This theme points out that for behavior to change, individuals must recognize the problem, be motivated to act, and have the knowledge and skills necessary to perform the action.

SUMMARY

As we shall use the term, behavior therapy is a variety of techniques used in treating of maladaptive behavior. It is developed from behavior theories in social psychology, personality, learning theories, and cognitive psychology.

Basic techniques of behavior therapy include conditioning of incompatible responses,implosive therapy,reinforcement techniques, training of social skills, biofeedback, and cognitive techniques.

Behavior therapy was originally pioneered for the treatment of psychiatric disorders such as anxiety.

Recent developments have extended its application to medical problems which reflect the interaction between physical and behavioral factors.

This chapters examined the application of behavior therapy techniques in the treatment of headaches, insomnia, sexual dysfunctions, cigarettes smoking, and AIDS epidemic.

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